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IN MIDLAND MICH.

MIDLAND COUNTY COURT HOUSE

AERIAL VIEW
DOW CHEMICAL
PLANT - MIDLAND

Located near the central section of the Southern Peninsula, on the Tittabawassee River, Midland is both an agricultural and industrial center. Its manufactured products include chemicals, butter, powdered and condensed milk, toys and tools.

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PITTSBURGH WATER METERS

When you write for that catalog, kindly mention THE AMERICAN CITY

To Banish Urban Blight and Slums

Getting Back to Fundamentals in City Planning

HOW to get rid of blighted areas and slums has come to be recognized as a major municipal puzzle. It is a problem the seriousness of which in 1936 gives testimony to the foresight of the group of men who in 1909 brought into being the National Conference on City Planning. The fact is too seldom recalled that the first and second of these annual gatherings, which met in Washington and Rochester respectively, were called National Conferences on City Planning and the Problems of Congestion. At the Rochester meeting a resolution provided for the appointment of "committees on various subjects or subdivisions of subjects in the field of city planning," among which were included "a committee on taxation in relation to city planning," and "a committee on regulations governing the height, volume, or distribution of buildings upon private property or the degree of concentration of people thereon."

It is significant that the pioneers of more than a quarter-century ago were alive to the vital relationship of these questions to the rational urban development for which they hoped to plan. In his introductory address as Chairman of the 1910 Conference, Frederick Law Olmsted showed his appreciation of the significance of the taxation problem when he said:

> "As to the influence of methods of taxation in determining the physical improvements undertaken on private property, it will be enough here to cite a single example. In Pennsylvania the law provides for a classification of land [in the city of Philadelphia]* as agricultural, rural, and urban, of which the second is taxed twice as much as the first. As applied within city boundaries, vacant fields held for speculative purposes are commonly taxed as agricultural property. Under these circumstances the man who draws his savings out of concealed and untaxed intangible investments and builds a house is not only punished by a tax on the money he puts into his house, but is taxed two or three times as much on the land as his speculative neighbor who does nothing but play dog-in-the-manger and wait for 'unearned increment.'"

Benjamin C. Marsh, then Executive Secretary of the Committee on Congestion of Population in New York City, and the leader in convening the first Conference in Washington, called attention to "the present unjust system of municipal taxation by which land and accumulated wealth escape a fair measure of taxation and people with small incomes are compelled to pay often out of an actual deficit a heavy proportion of their earnings in taxation for municipal purposes."

* P. L. 1868, 443.

Frederic C. Howe, speaking also at the 1910 Conference, said:

> "Without any reservation, I have come to the conclusion that the orderly and symmetrical building of cities and the housing of urban population can be corrected through the taxation of land values more easily and more fundamentally than in any other way. By the taxation of land values I mean the abandonment of all taxes now levied against houses, buildings, improvements of all kinds, machinery, goods, stock in trade, and personal property of every kind and description, and the dropping of all local taxes onto the value of the land. I do not mean that we shall tax land, but rather the rental value of land. In other words, that all of the revenues of the city shall be taken from the ground or land rent, as is commonly done by private individuals under the ground-rent system in the business centers of our large cities."

And at the 1911 Conference, held in Philadelphia, Lawson Purdy, then President of the Department of Taxes and Assessments of the City of New York, said in the concluding paragraphs of a challenging talk:

> "City planning is the art of so arranging streets and public places that privately owned land may be put to its best use. When land is put to its best use, the maximum land value is one of the results. Land is the kind of property that is increased in value by improvements in the city plan. Land, therefore, ought to pay the bill and can well afford to pay it. The object of this paper is to show how to reduce the cost and how to make land pay for its own betterment. By taxation the price of land can be reduced, the opening of unnecessary streets avoided and the cost of government reduced. By assessment of property benefited, the cost of public improvements can be imposed on those who reap the financial reward that follows the improvement. By condemning more land than is necessary for the widening of an old street, or the opening of a new street or park in a settled neighborhood, the expense may be reduced and plots subdivided in proper shape for immediate and suitable development to the great advantage of all.
>
> "The methods of making awards for land taken for public use may be so devised as to insure just awards in a short time. While this subject may be regarded as the financing of city planning, it is much more; it involves the best use by all the people of their common heritage.'"

So here we have documentary evidence that during its first three years of life the National Conference on City Planning—or a few of its leaders, at any rate—gave thought to the relationship between taxation and planning. For the next twenty years this fundamental subject was scarcely mentioned. Then came a revival of interest, and during the last five years problems of decadent urban areas and their relationship to land and taxation policies have come increasingly to the fore. Today leading thinkers in this field may be found both in the camp of those who see in a scientific system of land-value taxation the best device for ridding our cities of blight and slums, and in the camp of those who would go even further and who see in the public ownership of urban land the real answer to our housing and planning problems.

The Case for Public Ownership of Land

FOR this most fundamental solution, a strong case is made by Dr. James Ford in the imposing two-volume study of "Slums and Housing,"* published June, 1936, by the Harvard University Press:

"Extension of public ownership of land is necessary to avoid recurrence of the evils of exploitation of land against the public interest and to give the government a firm control of the housing situation. Land is a proper field for public ownership. Management of land is chiefly a legal rather than a business problem. It is a type of business that government could handle efficiently. Accounting is simple. Public interest is paramount. Governmental land ownership is better than the single tax as a device to protect the public interest, because it eliminates the pressure of selfish interests and ultimately does away with the incentive to speculation, jockeying, and corruption, which are against the public interest. But it accomplishes the same purpose of letting socially created increments to land values accrue to the public who create them and not to private speculators.

"Public ownership of land should not be confused with socialism, for the latter technically connotes the socialization of all means of production and distribution, eliminates private ownership of capital and private operation of business and industry. Public ownership of land does neither. It has already been shown why building and operation of housing projects by the government is inadvisable.

"Ownership of land by the city or state is advocated here as a means to make slum land available to lease to private capital for the construction and management of approved housing developments under governmental supervision. Without it the process of slum elimination and rebuilding may be seriously delayed.

"Public ownership of land has been greatly extended in recent decades for parks, forest reservations, and engineering projects—by both the nation and the state. In Europe public ownership of housing is chiefly municipal and in some German cities, such as Ulm and Frankfort on the Main, has involved acquisition of a large percentage of the city's suburbs by the municipality in advance of development, making possible the leasing of the land under clauses permitting reverter and purchase by the city of the improvement at cost."

* See page 101 of the July issue.

LONDON COUNTY COUNCIL URGES LAND-VALUE TAXATION
(See page 73 of this issue)

THE first essential to the successful operation of any Municipality is an adequate and dependable supply of pure water. To successfully produce this water, everything depends upon skill, wide experience, modern drilling equipment and high efficiency pumps. In all these the name "Layne" stands foremost throughout the world.

If you are contemplating new wells or the purchase of new pumps you can profit by the valuable experience of Layne Hydrological Engineers. There is no obligation. For illustrated literature on Layne Pumps and Wells, and a complete explanation of Layne services, write Layne & Bowler, Inc., Dept. B, Memphis, Tenn., U.S.A.

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"THE WORLD'S LARGEST WATER DEVELOPERS"

LAYNE PUMPS and WELL WATER SYSTEMS

During August we hope you will remember to mention THE AMERICAN CITY

Our Municipal Notebook

City Transit on the Up

AFTER twenty long years in the doldrums during the rise of the motor industry from success to unparalleled prosperity, the city transportation systems of the country show signs of hope and of expectation.

There are sound reasons for this better outlook. The motor industry is no longer merely a builder of competitive tools, but has become one of the guides of the transit industry. Motor-buses, gasoline and diesel, have now become one of the standard vehicles of city transit.

A sufficient number of transit owners and executives have learned the value and principles of common merchandising, to seek new customers and hold old customers rather than to seek favors and political privileges. The sole hope of the transit industry lies in low operating costs and high riding appeal. Where once the transit equipment builders produced to meet solely a utilitarian viewpoint, they now, their ranks augmented by the makers of motor-buses, produce annual models that are intended to be ever more attractive, lower-priced and cheaper to run. As yet the operators are slightly bewildered by the kaleidoscope of vehicle fashions. Can it really be possible that five-year-old buses are out of date? The answer is of course the public taste. Will enough new passengers patronize the new vehicles to warrant replacement at a once unheard-of rate?

As with most of the other heavy industries, so with transportation, the pioneers, the builders, the originators, have passed on, with their too-frequent public-be-damned policies, leaving the bag in the hands of managers whose job is to maintain that which was built in steel and copper and paper. The big money was in the paper, the stocks and bonds; the present money is in the pockets of passengers and prospective passengers. How can enough of the public's money be collected annually to pay dividends on enough of the securities to keep or make the city transit companies solvent?

Obviously, only by attracting the public, by attracting a larger part of it than was the case last year or this year. Once it was a question of: Will you walk or will you take a car? Now the question is: How can the public be persuaded from taking its own automobile? And the answer is in making the cars and buses so speedy, regularly scheduled and comfortable, as well as inexpensive, that it becomes plainly the part of common sense to use them wherever possible.

What's the road to modern city transportation—to that enlivened placing of transit facilities where they not only meet the needs of the present population but where they sketch out those areas where the city is to increase and multiply? An early issue of this magazine will endeavor to point it out and to suggest how it may be approached in every community that wants its public transportation system to keep pace with other features of modern city development.

Traffic Accidents: Three Things to Do

THREE things that can be done by traffic officials about the high accident record, besides worrying the drivers, are: (1) to provide lighting on highways and better lighting on the streets; (2) to place traffic lights at all intersections where they are needed—traffic lights driven by synchronous motors, tied together for progressive operation, fixed-time or vehicle-actuated, but traffic lights where they belong; and (3) to see that all motor vehicles are in as good condition as periodic inspection can assure.

Memphis was the first city to establish compulsory motor-vehicle inspection, with an undoubted decrease in accidents and fatalities. Other cities followed suit, such as Billings, Evanston, Des Moines, Chicago, Seattle, and Portland Ore. New Jersey's procedure, to start November 1, will be watched with interest in view of the exceptional traffic experience of the Governor as well as of the Motor Vehicle Department officials.

One reason why traffic lights are not more effective is (1) because they are not installed at enough intersections, and (2) because they frequently are not, and at isolated intersections rarely are, timed to fit the traffic.

A recent illustration in a Shell gasoline advertisement in the *Saturday Evening Post* shows a situation that happens frequently where there are fixed-time traffic lights. It is entitled "And Not a Car in Sight," and shows an automobile stopped in front of a red light at a lonely intersection. When traffic is reasonably heavy, nobody complains; but during the many hours when traffic is light, it is a situation that tries the patience of drivers and demands the installation of traffic-actuated signals.

Not all traffic accidents happen at intersections; but enough of them do to make the intersection, whether street or highway, the major problem. Next to canonizing the motorists, the nearest measure to a solution is to signalize all the "bad" intersections—and most of them are bad. Suppose it does cost $700, or the price of a car or smash-up per intersection. Is there any cheaper method of reducing accidents?

At the top there is indignation over 36,000 traffic deaths per year. In the traffic and street-lighting bureaus there is pressure for economy transmitted from the top. It is time the top, in the shape of mayor and council, governor and legislator, took the facts to the people, sold the idea of thorough lighting and signalization, appropriated the cost, and ordered the traffic and lighting bureaus and the highway department to proceed with adequate lighting and proper signals.

There is a great deal of talk about traffic deaths, comparing the annual holocaust with the toll of the World War. If there were any danger of a foreign power killing 36,000 American boys, 10 billion dollars per year could be raised to stop the carnage. One-fiftieth of that sum can be raised to save a good portion of the 10,000 "extra" deaths that take place on dark and dim streets and roads and of an equal number that take place at open intersections.

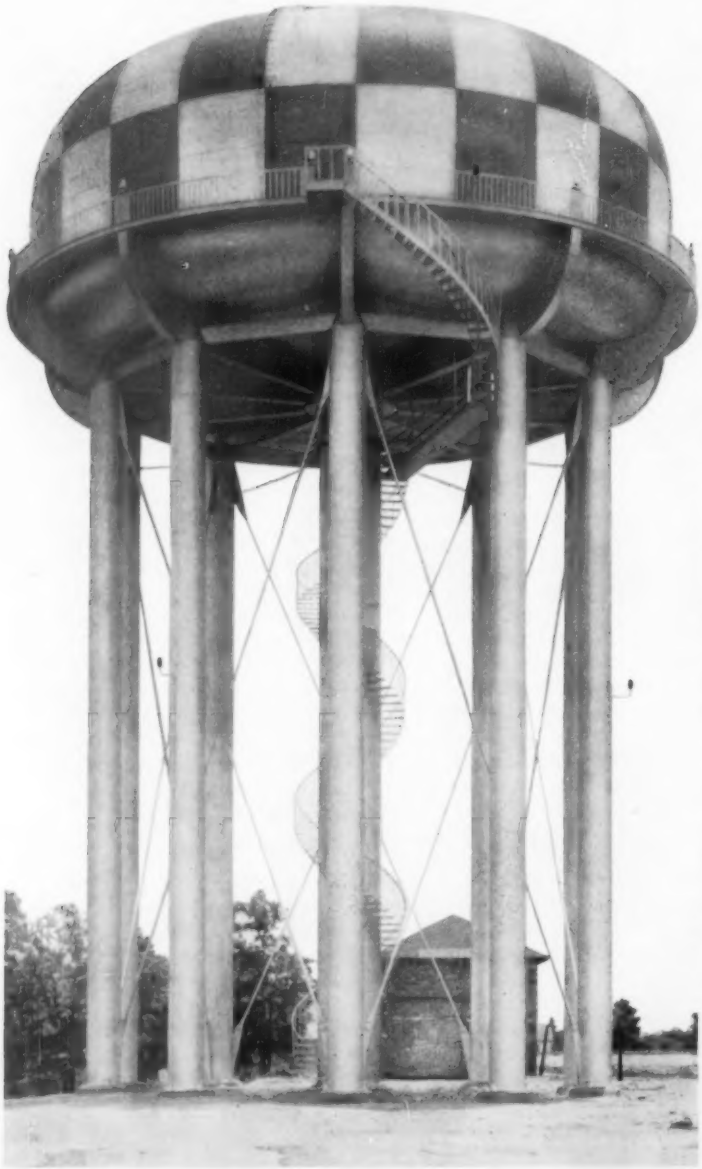
Traffic accidents cannot be talked out of existence. Things must be done. The three things that will do most to reduce the number of accidents are the right traffic signals at intersections, adequately lighted streets and highways, and motor vehicles that are in good working order.

Home Heating by Electricity

SOME of the large power companies are not convinced that low residential rates would greatly increase consumption. The reason for this is that these companies do not think in terms of very low rates. It is quite true that a rate reduction of 20 per cent might not result in increased consumption of even that figure. In fact, it may be that the promised era of liberal home use of electricity will not arrive until it is made feasible to heat homes electrically at a cost comparable with coke, coal and oil. It will be said at once that electric heating is uneconomic and it likely always will be. The Hydro Electric System of the city of Winnipeg found that at ½-cent per kwh the cost to heat a house was 50 per cent more than with coal. Two years ago a test installation was made in an insulated bungalow, and it was determined that to compete with coal the rate would have to be ¼-cent per kwh. Instead of renouncing the thought of ever handling the domestic heating load, it is evident that close attention should be given to producing a heating system requiring a very much smaller consumption of energy.

Modern Elevated Tank Solves District Water Supply Problem

for Augusta, Georgia



This Colonial design harmonizes well with the traditional architecture of the old South. Note the checkerboard pattern painted on tank as a warning to low-flying airplane pilots.

WATER service in Augusta, Georgia, is divided into three districts—low, intermediate and high. These correspond roughly with the increasing grade elevation as the city stretches along the southern bank of the Savannah River westward towards the hills of the lower Piedmont region. From the standpoint of supply this is a fortunate location. Water is taken from the river some seven miles above the city and run through filters to reservoirs located on high ground in the western suburbs. Uniformity of pressure in the intermediate and low districts is secured easily through the use of regulating valves.

Unfortunately, supplying water for the high western district has not always been so easy. In recent years, new homes gradually overtaxed the reserve capacity of the equalizing standpipe connected with the high service mains and there were times when interruptions in pumping left this district virtually without water.

It was for this reason that Augusta decided to increase the high service reserve with the 500,000-gal. radial-cone bottom elevated tank pictured at the left. All of this capacity is available at a minimum head of 66 ft. above ground level. In emergencies, it is available at even greater head for the two lower districts.

Let us tell you how properly designed elevated storage will improve service and reduce pumping costs.

AUGUSTA HIGHLIGHTS—First settlement in 1735. Important fort during Revolutionary War. Vital rail and aviation center. Popular haven for winter tourists. Industrial and commercial center for rich agricultural district. Famed among golfers as home town of Robert T. Jones.

CHICAGO BRIDGE & IRON WORKS

Chicago.....2127 Old Colony Bldg.
New York.....3308-165 Broadway Bldg.
Cleveland.....2236 Rockefeller Bldg.
Detroit.....1501 Lafayette Bldg.
Philadelphia....1616 "1700" Walnut St. Bldg.
Boston.....1501 Consolidated Gas Bldg.
Birmingham.....1502 N. Fiftieth Street
Dallas.....1406 Dallas Athletic Club Bldg.
San Francisco.....1033 Rialto Bldg.
Houston.....2919 Main Street
Tulsa.....1625 Thompson Bldg.
Los Angeles.....1403 Wm. Fox Bldg.

Fabricating plants in CHICAGO, BIRMINGHAM, and GREENVILLE, PA.

Water: Meters, Rates and Purification

Caring for Water Meters in Dubuque, Iowa

IN the last fiscal year there were a total of 9,278 water meters in service in Dubuque. These included 8,831 ⅝-inch; 193 ¾-inch; 135 1-inch; 12 1¼-inch; 36 1½-inch; 38 2-inch; 19 3-inch; 11 4-inch; 2 6-inch; and 1 10-inch. There were 170 new ⅝-inch meters installed during the year, 6 ¾-inch, and 6 1-inch. A total of 87 ⅝-inch meters were scrapped, 2 ¾-inch, 2 1-inch and 1 1½-inch.

The meter shop repaired 1,071 meters. This was made necessary by the following conditions: frozen or damaged by hot water, 115; sand or gravel, 112; corrosion, 161; leaking, 21; tested, 65; ordinary wear, 505; and scrapped, 92.

The meter men's reports show the following interesting facts: there were 34,908 quarterly readings; 3,030 monthly readings; 2,274 return trips because consumers were not at home; 1,198 trips to turn on water; 1,141 trips to shut off water; 963 miscellaneous trips; 1,142 trips to take out meters; 1,096 trips to install repaired meters; 50 trips to clean registers; 45 trips to repair stuffing-boxes; 639 trips for inspection for leaks; and 26 trips to install new glass and tops.

J. W. McEvoy,
Superintendent, Water Department.

Removing Salt from Sea Water

AN outstanding discovery resulting from the work of the Water Pollution Research Board, London, England, is that certain synthetic resins possess marked base-exchange properties, greater in some instances than the base-exchange values of existing commercial materials. Other resins have been prepared which remove acids from solution in water. By treatment of tap water with a resin of one type and then with a resin of the second type, the salts in solution were reduced from 33 parts to 1 part per 100,000. Similar treatment repeated two or three times removed most of the salt from sea water.

—From the report of the Water Pollution Research Board, London, England, for the year ended June 30, 1935.

How Would You Like to Get Your Water This Way?

ROBERT WILDER, columnist of the *New York Sun*, whose interesting chat, 'On The Sun Deck," contains information on shipping of interest to all, recently published a letter from an E. B. Holton on that delightful Caribbean cruise port, Willemsted, Curacao. We quote the following paragraph which gives an interesting insight into the water supply of this port on the site of an old volcano, the crater of which is filled with water forming the inner harbor, and the entrance to which, Waigat, is a stream that is filled to a depth of 300 to 600 feet with water:

"Headed out, with a green flag signaling from the fort, is the neat, gray-painted Swedish tanker Castor, down to her Plimsoll mark with refined oil. It had us worried how those big tankers made a westward crossing, but it appears that as Curacao has only 16 inches of rain annually, the big tankers come across the Atlantic using sweet water as ballast. This is then pumped out of the tanks, is distilled and used at the refinery or for drinking purposes, if any."

Irrigation Rates in Montana

THE following table is prepared from a questionnaire sent out by the Water Department of Great Falls, Mont., to over 200 leading cities in the United States in an endeavor to determine the irrigation rates for the season for lots 50 x 150 feet in area. Data from Montana cities only are recorded:

Great Falls—Paid by May the thirtieth...	$2.70
Helena	6.00
Butte—Less 10 per cent if paid by June 30	13.00
Missoula—Less 10 per cent if paid by June 30	8.75
Billings—Meter rates less 25 per cent	
Havre	5.00
Choteau	4.00
Kalispell—Regular meter rates.....	
Lewistown—$3.00 if paid before May 10..	3.00
Lots 50 x 90 feet	
Miles City—Meter rates.....	
Bozeman—Regular meter rates.....	
Livingston	5.00
Glendive—Regular meter rates less 50 per cent	
Glasgow—regular meter rates.....	

Sam Bernhardt,
Registrar of Water Department.

Light and Water Department Canceled April Bills

THE citizens of Deshler, Ohio, received their bills from the Municipal Light and Water Department early in April bearing the notation, "Canceled with the compliments of the Board of Trustees of Public Affairs." The Board decided to waive collection of March bills because there was sufficient money on hand to continue operation without further income.

The savings to 585 customers totaled $3,200, an average of $2.00 for each of Deshler's 1,600 inhabitants. This canceling of bills is not a new occurrence, for during the year 1935 patrons received $7,800 in canceled bills, representing statements for March, June and November.

In addition to this gift to the consumers, the plant furnished free light and water for the city streets, parks, public buildings, and schools, and financed a $2,000 sewer project.

Frank B. Miller,
Superintendent, Municipal Utilities.

Another City Water Department Pays a Bonus to Consumers

THE Water Department of Melvindale, Mich., on March 20, 1936, paid a bonus or credit to all water consumers who had their water bills paid in full on that date. This bonus or credit consisted of a 25 per cent credit on the bills for water consumed and paid for during 1935. This approximates a three-months water bill, and about 75 per cent of the water consumers benefited in sums ranging from $1.19 to $319. The payment was made in spite of the fact that water rates have been reduced approximately 50 per cent since 1930.

In 1930 the minimum bill was: $2.75 for consumption up to 1,000 cubic feet, $1.50 for consumption from 1,000 to 10,000 cubic feet, and $1.30 for consumption over 10,000 cubic feet. The rates for 1936 were: $1.25 for the first 1,000 cubic feet, 80 cents per 1,000 to 5,000 cubic feet, and 70 cents per 1,000 over 5,000 cubic feet. Also, a 10 per cent discount was allowed during the last six months of 1935 on the water rates, the lower rates taking effect September, 1935.

Edward MacDonald,
Water Commissioner.

New Water Rates in Anamosa, Iowa

EFFECTIVE February 21, 1936, by city ordinance, the water rates in Anamosa, Iowa, were amended and the rates below made effective:

First 800 cu. ft.....	$1.95
Next 5,000 " "	0.15
" " " "	0.14
" 10,000 " "	0.12
All over 28,000 " "	0.08

The following minimum quarterly rate applies when the consumption of water at the above rates for meters of the respective sizes does not equal the amount shown opposite the size of the respective meter:

⅝" and ¾" meter.....	$1.95
1" " 1½" "	2.25
2" meter	3.00
3" "	3.75
4" "	4.50

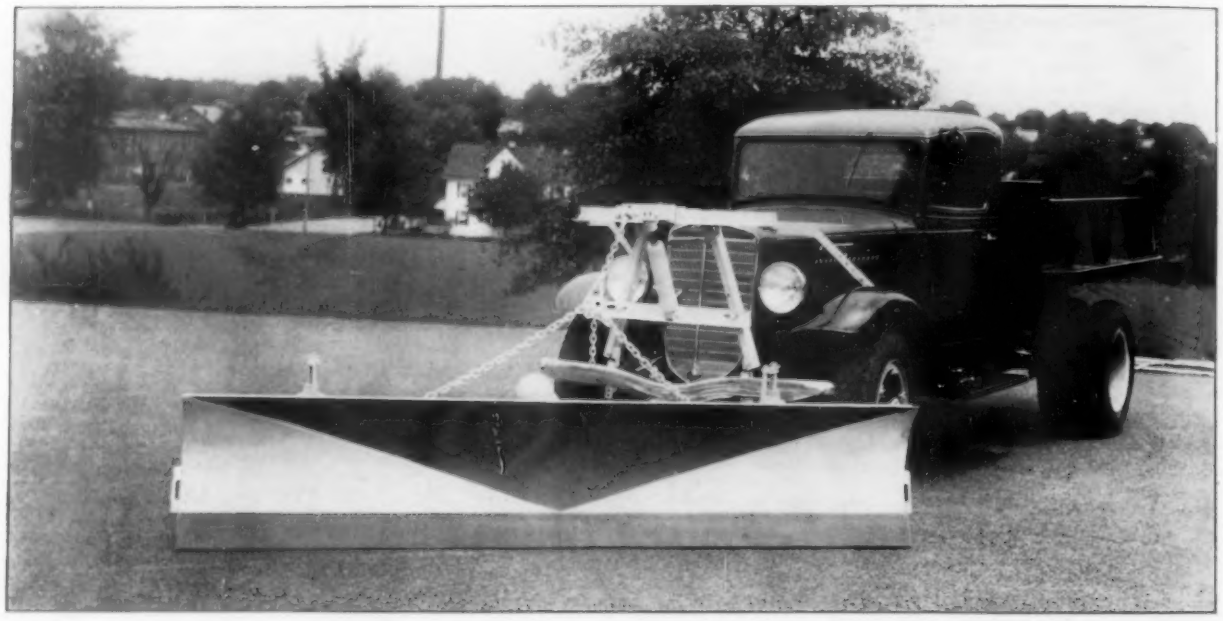
These charges are net, and are due on or before the 15th of the month following the quarterly period for which the bill is rendered. All charges not paid on or before that date are subject to an increase of 10 per cent on the first $10 and 2 per cent on the balance, and the gross bill thus determined is due and payable immediately. No meter rental charge is made.

Price Blayney,
Superintendent of Water Works.

Good Roads

CHAMPION

SNOW PLOWS



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"Designed and built by the World's oldest and largest manufacturers of highway snow plows."

Industrial Sewage—Sewage Sludge

Keeping Industrial Wastes Out of Sewers

THE elimination of certain types of industrial wastes from both the sewerage and storm drain systems in Los Angeles, Calif., has been found to be most necessary in order to prevent stoppages, and also, mainly in the case of storm drains with open catch-basins, to prevent foul odors which result from the decomposition of the organic matter in the effluent from the industrial plant. Some of the substances causing odors have been creamery wastes, brewery mash, and laundry waste, while substances tending to cause stoppages of sewers have been wheat, corn, peppers, orange peel, tomatoes, cork, glass and soap. There have also been large quantities of oil and grease. Records are kept of habitual offenders, and through personal contact and education a considerable degree of cooperation is obtained.

The City Council, in 1935, passed an amendment to the building ordinance governing the installation and maintenance of grease-traps on private property, and beneficial results are expected, inasmuch as the ordinance delegates authority to the Board of Public Works and its employees to make inspections on private property and to enforce the provisions of the ordinance.

LLOYD ALDRICH,
City Engineer.

Model Sewage Treatment Project for Industrial Communities

THE Electro-Motive Corporation, a division of General Motors at McCook, Ill., recently completed a model sanitary sewer and treatment system for an ultimate population of 2,000 at an estimated daily flow of 30,000 gallons. The collection system is of cast iron soil pipe and vitrified sewer pipe laid on grades which provide self-cleansing velocities. Sewage is delivered to a wet well with a maximum capacity of 675 gallons and a working capacity of 400 gallons. From the pumping station two 3-inch Yeomans heavy-duty vertical sewage pumps, with automatic controls and a capacity of 125 gallons per minute each against a total head of 40 feet, deliver the sewage to the treatment plant through a 6-inch cast iron force main with a total static and friction head of about 30 feet.

There is a 3-hour detention period in the sedimentation chamber based on an hourly flow of 1/24th of the daily flow. A reversal of flow through the chamber is provided. The sludge digestion tank has a capacity of 1,800 cubic feet, and digested sludge is withdrawn by hydrostatic pressure. From the sedimentation basin the settled sewage flows to a dosing chamber with a capacity, below the discharge line, of 9,100 gallons. This is equivalent to 7.1 hours' average flow and covers each filter bed once every 14.2 hours to a depth of 1.138 feet. The dosing chamber is equipped with two double-acting type PFT siphons and a Veeder-Root heavy-duty float-operated discharge counter.

The sand filters consist of two beds, each 66 by 139 feet with 24 inches of clean, washed quartz sand with an effective size not less than 25 mm, underlaid with 6 inches of crushed stone with 6-inch underdrains laid at the bottom of valleys 12 inches deep and filled with 1- to 2½-inch crushed stone. The underdrains lead to the main collector across one end, and to a 54-inch sewer across the north end of the 70-acre plant site.

The sludge drying beds consist of a 12-inch sand bed underdrained with 6-inch drains laid in crushed stone. The faces of all the embankments surrounding the sand filters, sludge drying bed, sedimentation tank and dosing chamber are sodded to prevent erosion.

Two methods of bypassing have been provided for emergency use. When it is necessary to cut the filters out of use, a bypass from the dosing tank to the main collector of the filter bed is available through an 8-inch vitrified soil pipe line. When it is necessary to bypass the entire plant, a 4-inch cast iron line is available to connect the force main to the collector.

Making Better Use of Available Sludge Drying Beds

C. H. YOUNG, District Engineer, Pennsylvania State Health Department, told the Ninth Annual Conference of the Pennsylvania Sewage Works Association that when analyzing the records of many plants he found that very few sludge beds were worked to their capacity. He feels there are many reasons for this and offers the following suggestions for the more effective utilization of available drying beds:

1. A good sludge is essential for rapid dewatering. The stage of decomposition of the solids affects its ability to drain. Control the operation of the digesters so as to produce a well-digested, rapidly dewatering sludge. Remember, the more water removed by drainage the less by evaporation, which means reduced drying time.

2. Clean the bed of previously dried sludge before re-dosing, and see that the sand surface is well loosened before each dose. Never discharge wet sludge to a bed containing dry, or partially dry, sludge.

3. Provide a definite operating schedule for regularly drawing sludge to the beds. A small number of beds dosed regularly is better than a large number dosed at one time. The schedule must consider the type of beds, open or closed, the character of the sludge, and the season of the year.

4. The optimum depth to which to apply wet sludge will vary from 7 inches to possibly 16 inches, dependent upon the season of the year, the moisture content and the character of the sludge.

5. Level the sludge beds as frequently as needed.

6. Remove dry sludge from the beds as promptly as possible. Do not try to produce bone-dry sludge or to keep sludge on beds until very low moisture contents are reached, unless large bed areas are available. Remember, the purpose of sludge drying beds is to reduce the moisture content so that the sludge can be conveniently removed.

7. For open beds, select sludge dosing times so as not to precede a rain, if possible; and for glass-covered beds, avoid drawing during excessively cold periods of the winter.

8. Provide plenty of ventilation for glass-covered beds.

9. Do not draw sludge from the digester at a discharge rate high enough to produce funneling, thereby loading the bed with excess water to be handled.

Vacuum Filtration of Sewage Sludge

TESTS carried out in various parts of the country indicate that vacuum filtration of sludge, either fresh, activated or digested, is practical and economical for sizable plants. This process can be confined to a small space, whereas with air drying on sand beds, large areas of land are needed, land which may be expensive and difficult to obtain. Filtration eliminates a great deal of labor or expensive equipment for sludge removal. In the case of filtration of fresh solids, the cost of digestion tanks is eliminated. This method removes the possibility of offensive odors obtained during air drying of only partially digested sludge, a process which may be necessary from time to time. Dewatering this way is entirely independent of weather conditions, and the whole process is continuous. In the North, sludge drying on sand beds is unsatisfactory during three or four months of the year, and storage or glass-covered beds must be provided. If storage tanks or glass-covered beds are not included, the cost of vacuum filtration and of drying on sand beds is about the same, the cost of filtration being estimated at $5.00 per ton, and of drying on sand beds, $4.94 per ton. If storage tanks or glass-covered beds are used, the cost of air drying is higher.

Incineration seems to offer a satisfactory method for the final disposal of sludge, especially in the case of fresh or activated sludge, where odor trouble with the filtered cake may be encountered.

—From a paper on the filtration and incineration of sludge, by G. P. EDWARDS, Associate Professor of Sanitary and Municipal Engineering, University of North Carolina, presented before the North Carolina Water and Sewage Works Association.

WHAT A BEATING BEADS* TAKE ON DUMP TRUCKS!

—But Beads in Improved High Profile Goodyears Can Take It

Improved High Profile Goodyear Truck Tires are made with heavy, braided-wire beads, securely tied in by the plies of the tire. And your truck tires need strong, dependable beads just as an athlete needs strong ankles.

You'll get better performance from these improved Goodyears. Ask your Goodyear dealer to show them to you.

They are bigger, sturdier, tougher—more rubber, more cotton, more air space. They have longer side walls. That means less generation of heat, more diffusion of heat that is generated. In every way they give you more for your money—yet they cost no more.

Other reasons why they're MONEY SAVERS are these: Supertwist Cord construction—All-Weather tread—heat-resisting rubber—and Pima Cotton, the longest cotton fibre grown.

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AKRON, OHIO

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To provide strength for heavy loads, swaying loads, high loads, Goodyear truck tires have an extra-strong, heavy, braided-wire bead—wide and securely tied in by the plies of the tire. This construction insures a firm seating of tire on rim. The larger size truck tires have dual beads.

GOODYEAR TRUCK TIRES money savers

Street Maintenance

Hastings, Nebr.

OUR streets are in excellent condition, kept so by regular maintenance, using a two-man patch crew and no relief labor. This patrol patch crew, consisting of a truck and two or three men, has proved effective and will be continued.

P. NAYLER,
City Engineer.

Huntington Park, Calif.

WE use gasoline money to keep our streets in good condition. The maintenance which is most effective is resurfacing with rock and oil, using our regular forces and relief labor. About $12,000 was spent on relief labor in 1935. At the present time we are using unemployed property owners on street construction work, in addition to our regular street department crew. The program for 1936 includes paving and resurfacing to the amount of about $100,000.

VAUGHN WOOD,
City Engineer.

Mobile, Ala.

OUR streets are always kept in good condition except some that are paved with wood blocks which have been disrupted after heavy rains, but they are always repaired immediately. We use our own forces for the maintenance of the streets, and we endeavor never to let a street get into a disreputable condition. We have not used any relief labor in this work.

Our plans for 1936 will be to keep the streets in first-class condition, with the regular maintenance forces, which has been done heretofore, and has proved very satisfactory. We are proud of the condition of our streets when considering the low cost of maintenance.

HARRY L. FISHER,
City Engineer.

Greensburg, Pa.

THE streets of Greensburg are in good condition, but, like almost every city, we had a severe winter, which was bad for the streets, especially the black top streets, which require a great deal of repairs. Last year the city did some surface treatment work on several of the unimproved streets with WPA labor. We have a full summer's program for the Street Department in conjunction with WPA, with plans completed and the money allocated for the work. We plan to continue resurfacing with specification E, brick re-improvement, telford streets and gutters, concrete curb, oil-bound macadam, etc. This program will cost approximately $100,000.

CHARLES H. WENTZELL,
City Engineer.

Waterloo, Iowa

OUR streets suffered from one of the worst winters in history for snow. Our old pavements were in terrible shape, but we are placing orders for patching material as rapidly as funds are available and using our regular maintenance crews. Much of our asphalt pavement is more than 20 years old and is very thin.

NATHAN B. BARBER,
Former City Engineer.

Logan, Utah

OUR roads are in good condition. They are mostly oil surface, and we have been doing extensive repairing from a stockpile maintained in our yard. The material for the stockpile is mixed in a cement mixer. Concrete pavements have required very little maintenance. The regular forces have been used for 90 per cent of the work, the remainder being done by relief labor. For 1936 we plan on oiling 3 miles of road besides the usual maintenance and repair work. We also expect to place 2 miles of curb and gutter and 1 mile of 5-foot sidewalk.

ERWIN U. MOSER,
City Engineer.

Painesville, Ohio

OUR streets are in good condition. We keep them so by keeping everlastingly at them with city maintenance crews and making repairs while defects are still small. The methods of maintenance which we have found most effective are re-laying brick when the joints are filled with asphalt, making concrete patches, and using black top for surface repairs and doing plenty of crack filling. Practically all our street work is done with regular forces. However, about 10 per cent of the labor of cleaning the streets has been performed by relief workers.

C. S. FULLERTON,
City Manager.

Valparaiso, Ind.

VALPARAISO city streets are urgently in need of repairs. Patching of carpet coat streets and seal coating should be carried out on possibly 10 miles of such improvements. Approximately 2 miles of our old brick streets could be relaid to great advantage. Funds are low, the city levy is high. The city has been assured of WPA help and is today confining its activities to lighter maintenance in the hope of being in a position to supply the materials as WPA activities are resumed.

WM. M. MORTHLAND,
City Engineer and Street Commissioner.

Warren, Pa.

OUR streets are in pretty good condition and have been kept so by scraping the dirt streets and patching the paved streets, using the regular street maintenance force. No relief labor has been used on maintenance. We hope to pave more streets under WPA in 1936, thus cutting down on our maintenance liability.

CALVIN W. BARWIS,
Borough Engineer.

San Bernardino, Calif.

OUR streets are in fair condition. Both the regular city forces and relief labor have been used. The relief labor has amounted to 650 man-days in 1935. For 1936, we plan to use relief labor financed by the Federal Government wherever possible.

CHARLES L. FOULKE,
City Engineer.

San Diego, Calif.

OUR streets are in generally good condition because we take care of them. Two maintenance crews have been used for patching continuously, both composed of members of the regular forces of the city. No relief labor has been used. We expect to continue our work along the same lines in 1936.

F. A. RHODES,
Director of Public Works.

Larchmont, N. Y.

THE improved streets in Larchmont are either of concrete or bituminous macadam. The concrete is in first-class condition, and the bituminous pavements are patched with Amiesite or Colprovia whenever holes develop. Maintenance work is performed entirely by our regular employees.

ARTHUR RICHARDS,
Executive Director.

Fort Collins, Colo.

OUR streets are in good shape owing to constant maintenance with a blade and attention to drainage. We use the blade with some surfacing and filling but watch the drainage most carefully. All this work is done with our regular forces and with almost no relief labor. In 1936 we plan to keep up maintenance, do what grading and surfacing we can, and oil-surface about 200,000 square yards of street. WPA has approved this project, and gravel is now being crushed preparatory to the spreading and oiling.

BURGIS G. COY,
City Engineer.

It costs so little to keep a city REALLY CLEAN

THE job of providing clean city streets is neither difficult nor expensive if Austin-Western Pickup Sweepers do the work. Actual comparative costs are available to show the money-savings of machine over hand labor.

In your selection of machines, remember good work depends on a sweeper that cleans the gutter thoroughly. Austin-Western has a 42-inch oscillating gutter broom that is a marvel of efficiency and mechanical simplicity. The Austin-Western Motor Pickup Sweeper makes a wide clean swath, taking everything from dust to broken bottles. With its truck-type chassis, hydraulic controls for rear elevator and gutter broom, squeegee type elevator, the Austin-Western Motor Sweeper is a sturdier, more effective machine. Easy to control in traffic. Complete visibility. Sweeps closer to parked cars.

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A-4, Aurora, Illinois

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Address.....
City.....State.....

Public Safety

Traffic on Triborough Bridge (*See pages* 117, 119)

THE $60,300,000 Triborough Bridge, running from Queens to Manhattan and Bronx boroughs in New York City, carried 57,104 vehicles on Sunday, July 12, which was the day after it opened. Daily traffic in the first nine days was as follows:

July 12 to 20, 8 A. M. to 8 A. M.	
Sunday to Monday	57,104
Monday to Tuesday	28,877
Tuesday to Wednesday	25,041
Wednesday to Thursday	30,152
Thursday to Friday	32,238
Friday to Saturday	30,283
Saturday to Sunday	37,819
Sunday to Monday	54,764
Monday to Tuesday	20,506

The average for the first seven days was 34,500 vehicles per day. At this rate, six months' traffic would total 897,000 vehicles, which compares as follows with traffic for the first six months of 1936 over other famous toll structures to and from Greater New York:

Port of N. Y. Authority structures	Vehicles	% Increase from 1935
George Washington Bridge	2,871,275	5.7
Goethals Bridge	263,006	13.6
Outerbridge Crossing	117,370	12.0
Bayonne Bridge	206,000	1.0
Holland Tunnel	5,295,421	2.0

Average daily traffic for the month of July exceeded 33,000 vehicles.

The 1935 Fire Loss

FIRE losses in the United States for the year 1935 were $248,763,856, according to the National Board of Fire Underwriters, the smallest since 1915, and a decrease of 8.3 per cent from 1934.

When the cities are examined individually, there is of course considerable unevenness. Among those of more than 500,000 population, fire losses increased in Philadelphia, Los Angeles, Baltimore, and Pittsburgh. Of 28 cities of 100,000 population or more, 13 showed increases. The cities in which the losses exceeded $5 per capita (the asterisks indicating the number of years in which the city has been in this class during the 5-year period ending December 31, 1935) were:

Salem, Ore.**	$35.23	Shamokin, Pa.	7.14
Peoria, Ill.	31.93	Peabody, Mass.****	6.97
LaCrosse, Wis.	10.18	Lewiston, Maine**.	6.28
Steubenville, O.**	7.51	Concord, N. H.	5.73
Stockton, Calif.**.	7.47	Chelsea, Mass.***.	5.44
		Tacoma, Wash.	5.06

Fire losses for each of the first five months of 1936 have been above the corresponding month of 1935. In millions of dollars the figures are as follows:

	1936	1935
January	28	23
February	31	25
March	29	25
April	26	23
May	21½	21
	135½	117

Chicago Crime in 1935

OF the 2,717 major offenses disposed of in the criminal courts of Chicago in 1935, there were 2 death sentences out of 179 murder trials, and prison sentences were given as follows: for murder, 76 out of 179 trials; for manslaughter by negligence, 38 out of 73; for rape, 32 out of 80; for robbery, 618 out of 1,185; for aggravated assault, 14 out of 44; for burglary, 154 out of 472; for larceny, 209 out of 350; for automobile theft, 136 out of 334 charged.

Why Worm In?

"THE really simple task of worming a car into a certain gap in the row of cars lining the curb is something that troubles many motorists," says W. R. Bamford, Dodge Division of Chrysler Corporation, who then proceeds to tell how to perform this miracle without wearing tempers, fenders and bumpers.

Parking meters, providing 20 feet of curb space per car, make this knowledge and ability unnecessary on streets where such devices are installed.

Traffic Control Tried from Radio Blimp

DIRECTING traffic and the possible pursuit of criminals from the air was given a practical demonstration in Cleveland recently with a special short-wave transmitter and receiver installed in the airship. Deputy Traffic Commissioner Martin A. Blecke gave orders to traffic men in Cleveland's 25 radio police cars and carried on a two-way conversation with one of the cars.

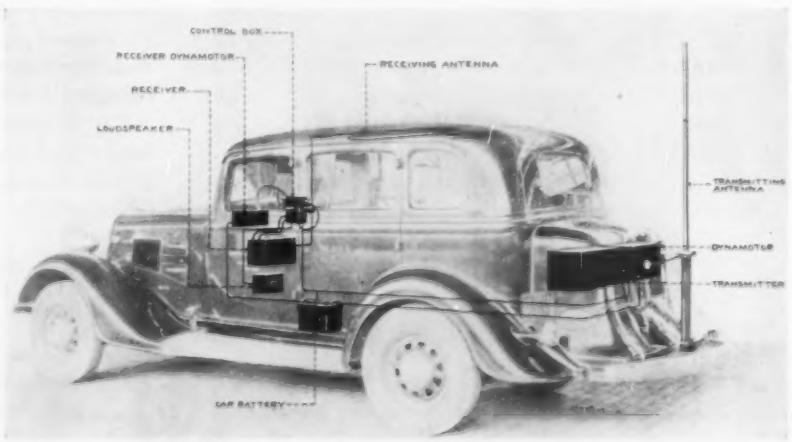
"I can see great possibilities in directing traffic from the air," Commissioner Blecke said after the demonstration. "I had a perfect view of all roads of the city at all times and could see where traffic was heaviest, and it was an easy matter to dispatch extra help by means of the short-wave radio transmitter.

"In addition to traffic regulation, I can see where such a set-up would prove most helpful in the pursuit of criminals. From the airship it would be a comparatively easy matter for me to keep my eyes constantly on the fleeing criminals while I was talking to the police cars on the ground. I could direct the cars so that it would be fairly easy for them to rush ahead and block roads and eventually close in on the criminals. If they should duck to shelter in some building or yard, I could see them, and by radio it would be no trouble for me to direct officers to the spot."

OVER CLEVELAND

"The dirigible is ideal for this purpose. It can fly slower, in fact, almost stand still at times, whereas an airplane must cruise at greater speeds, and thus it would be more difficult to keep your eyes trained on any particular persons or location. This demonstration has proved to me the wonderful possibilities for doing police work from the air."

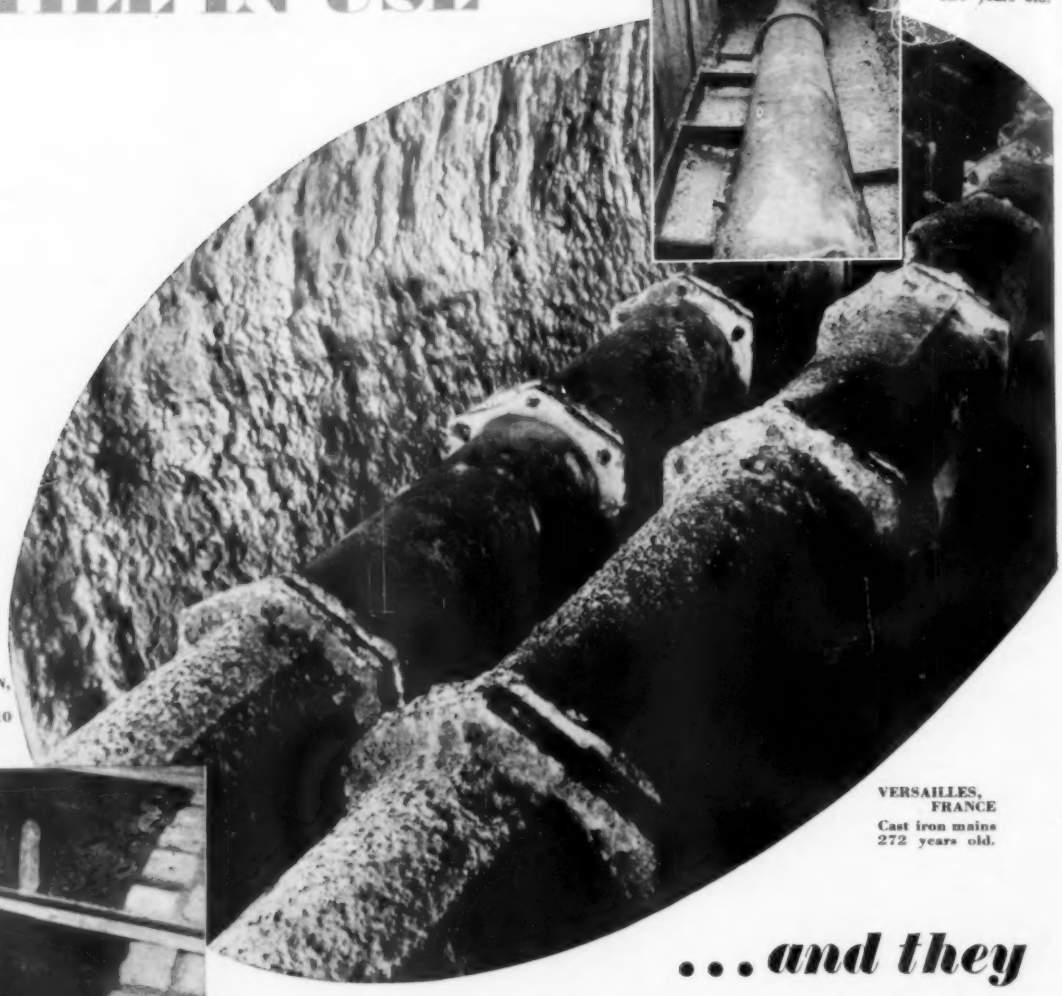
For the demonstration, General Electric installed a portable 50-watt transmitter as well as receivers in the blimp. From the air this transmitter has a range of about 500 miles. It operates on a frequency of 150 meters, in close proximity to the regular channels assigned to the police.



CAR EQUIPPED FOR TWO-WAY WITH 15-WATT TRANSMITTER

STILL IN USE

LONDON, ENGLAND
Cast iron main 126 years old.



EHRENBREITSTEIN, GERMANY
Cast iron main 210 years old.

VERSAILLES, FRANCE
Cast iron mains 272 years old.

...and they average 203 years of service

You see above the unretouched photographs of three cast iron water mains, still functioning underground, after a term of service averaging 203 years. Engineers estimate the life of cast iron pipe at 100 years, which is, of course, conservative. No one knows the full span of the useful life of cast iron pipe. The first recorded installation, made 272 years ago in Versailles, France, is still in service. But all engineers know that cast iron pipe is the longest-lived, most economical material for underground mains. Cast iron is the standard material for water mains the world over. Its useful life is *more than a century* because it effectively resists rust. It is the one ferrous metal pipe for water or gas mains or sewer construction that will not disintegrate from rust. Available in diameters from 1¼ to 84 inches.

For further information, address The Cast Iron Pipe Research Association, Thos. F. Wolfe, Research Engineer, 1013 Peoples Gas Bldg., Chicago, Illinois.

CAST IRON PIPE

METHODS OF EVALUATING BIDS NOW IN USE BY ENGINEERS RATE THE USEFUL LIFE OF CAST IRON PIPE AT 100 YEARS

TRADEMARK REG.

AUGUST, 1936

Vol. LI, No. 8

The American City

470 Fourth Avenue
New York

35 Cents, $2 a Year

Channelizing Traffic Islands

How Milwaukee Is Controlling Vehicular Flow and Increasing Pedestrian Safety at Complicated Intersections

By HOWARD F. ILGNER
Chairman and Engineer, Traffic Committee, Milwaukee Safety Commission, Milwaukee, Wis.

WHEN a moving vehicle on a public highway strikes another moving vehicle or a pedestrian, we have what is known as a "vehicle traffic accident," or, if the vehicle be a motor vehicle, a "motor-vehicle traffic accident," which is the type of accident we are most concerned with at the present time. Obviously, to prevent accidents the proper procedure is to prevent moving vehicles from striking other moving vehicles, pedestrians, or fixed objects. If this could be accomplished, there would be no more worries about traffic accidents.

From an engineering standpoint, attempts are being made to accomplish this in various ways:

1. By proper allocation of street space
   (a) Pavement markings
   (b) Channelizing traffic islands
2. By traffic signs
3. By traffic signals
4. By grade separations
5. By providing adequate visibility

Since 65 per cent of the motor-vehicle fatalities in cities affect pedestrians, it is a foregone conclusion that all intelligent traffic planning must give consideration to the pedestrian. Elevated sidewalks and pedestrian tunnels are not in the picture as the immediate solution of the pedestrian problem on a large scale, nor are they, when available, as popular as they might be. Immediate progress must be made on the street surface. Similarly, street-crossing grade separations for motor vehicles cannot be considered at the present time for city streets in general, and any immediate progress in safety along this line must also be made on the street surface, with the probability that there will never be a complete separation of grades.

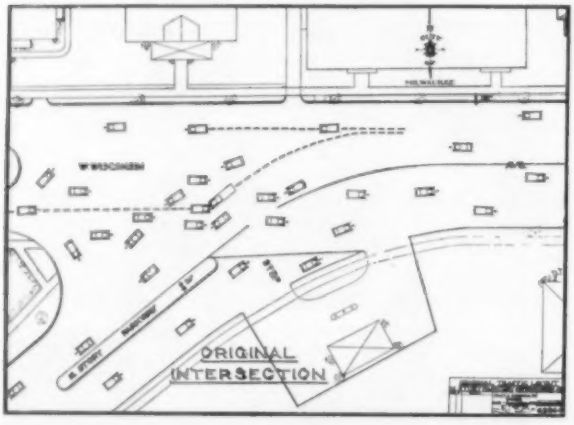
Proper allocation of street space, then, assumes considerable importance in the traffic-safety problem. Pavement markings have been used for this purpose for many years, supplemented by the traffic button. Misuse of the traffic button as the remedy for all traffic ills has led to the elimination of many such buttons, although a properly designed illuminated traffic button used at proper locations is still one of the most useful instruments in the allocation of street space.

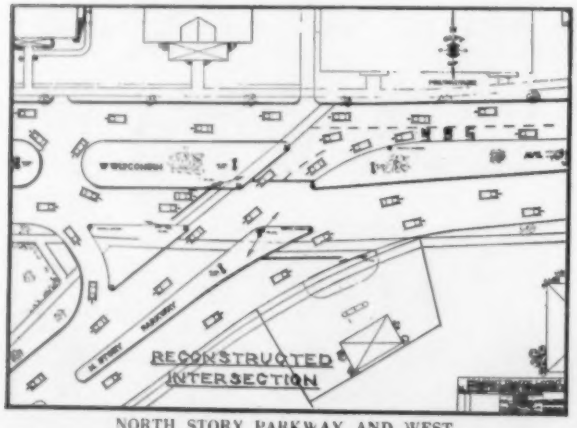
At complicated intersections and on wide roadways, channelization of motor-vehicle traffic by means of traffic islands is becoming an important method of improving

TYPES OF TRAFFIC ISLANDS AND METHOD OF ILLUMINATION USED IN MILWAUKEE

traffic conditions. Such channelization separates and directs the various moves of vehicular traffic, thus not only providing greater safety for motor vehicles, but also greatly aiding pedestrians. A pedestrian with only short distances to travel between curbs, who knows where motor vehicles are going, and who has to watch vehicle traffic from only one general direction when making a crossing, is certainly in a much safer position than a pedestrian who has to negotiate long crossings amid non-channelized and confused vehicle traffic.

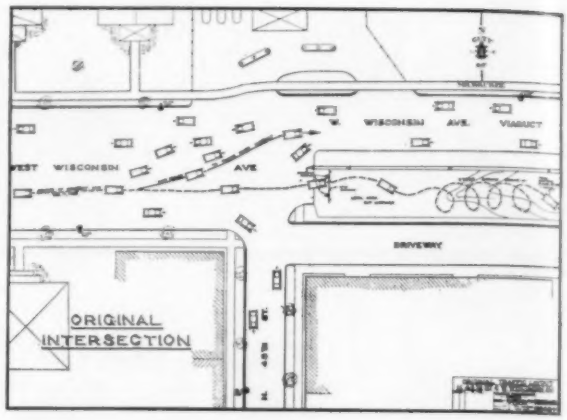
The traffic islands used in Milwaukee are of low type construction, offering no great hazard to motor vehicles, and yet commanding enough so that no motor-vehicle driver would deliberately ride over them. The edges are plainly marked by amber traffic markers, which are illuminated at night by electrical connection to the street-lighting circuits and definitely indicate the existence of the islands and also their general shape and size. A series of center islands along a wide roadway would generally have two such marker lights which would indicate their existence and width, while triangular islands at street intersections would generally have one traffic marker light at each corner. These amber marker lights are right down on the islands; in fact, they form an important part of them. They are not up off the ground where they can be confused with other lights, or where they can be easily obliterated by the glare of on-coming headlights. General illumination from street lighting or floodlights is not sufficient to overcome glare from on-coming headlights, even though such glare be small. A light source can be effectively fought only by another light source, and the glare of headlights is here opposed by another light source which does not illuminate but is part of the object itself.

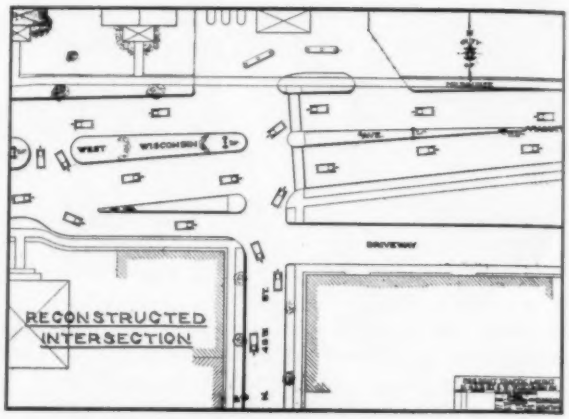




NORTH STORY PARKWAY AND WEST WISCONSIN AVENUE, MILWAUKEE

(Day and night views of this reconstructed intersection, accompanying a brief article headed "Milwaukee's Street-Lighting Intensity Is Traffic-Adjusted," will be found on page 123 of THE AMERICAN CITY for April, 1936)





NORTH 45TH STREET AND WEST WISCONSIN AVENUE

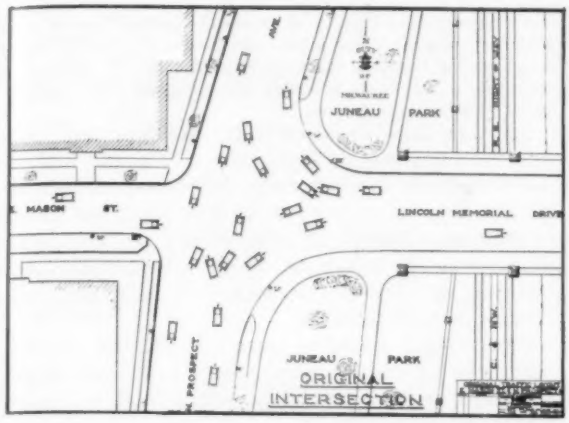
We believe that the traffic islands described provide a proper balance between the motor-vehicle driver and the pedestrian in the matter of safety. In case a mistake is made by a motor-vehicle driver—which has happened—he may bump the traffic marker or standard or go over the corner of the island, but very rarely does he lose control of his car or is injured.

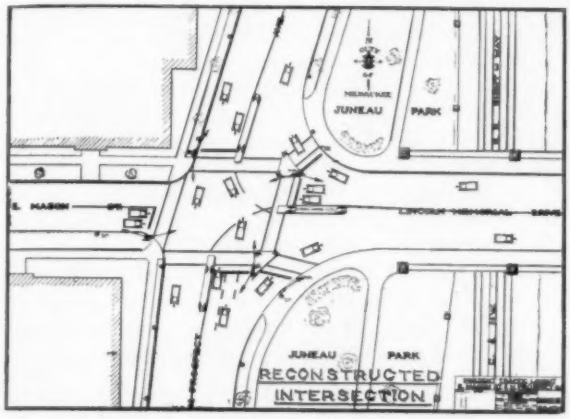
Some of the unusual intersections which have been channelized in Milwaukee are shown on the accompanying diagrams and are as follows:

North Story Parkway and West Wisconsin Avenue

Original Intersection.—Originally this intersection was one vast expanse of pavement which, owing to its accident record and general hazardous nature, became known as "The Battle Ground." The roadway of West Wisconsin Avenue was 90 feet wide without any islands to break up this extreme width. Because of the enormous openings at North Story Parkway, the actual width of the pavement was far in excess of 90 feet at the point of crossing. It was thought at one time that with ample space in which vehicles might maneuver, no trouble would be experienced, but instead, every one was confused and the pedestrian especially had no chance whatsoever.

Reconstructed Intersection.—In reconstructing this intersection, the principle of channelization was carried out in detail as shown on the diagram. There is no longer any question as to where the vehicular traffic stream will flow, and





EAST MASON STREET AND NORTH PROSPECT AVENUE

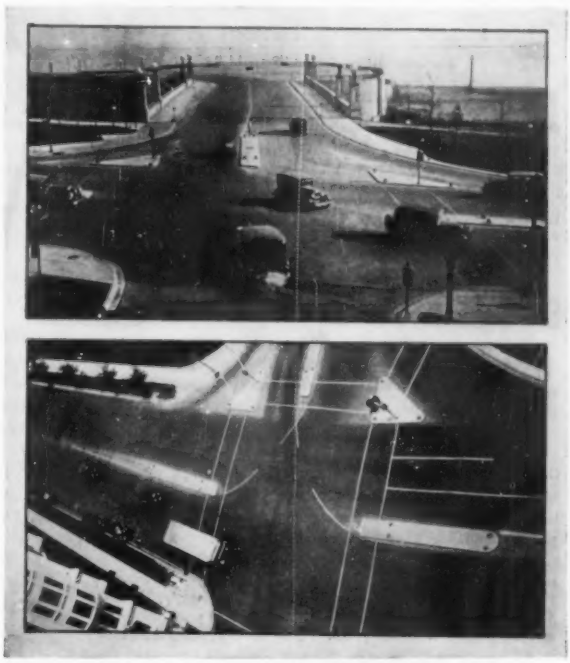
pedestrians no longer need to call a taxi when they wish to cross from one side of the intersection to the other. It should be noted particularly that the vehicle conflict has been brought down to a very small area, easily controllable by traffic signals, with no loss of time to moving traffic; shown by the fact that although this is one of the busy intersections of the city, and the gateway to the west, the traffic signals operate on a 35-second total cycle.

West End of West Wisconsin Avenue Viaduct

Original Intersection.—The diagram on p. 44 shows a great hazard which existed at this location before improvements took place. Any one not familiar with the location might easily be caught in a trap, as many were.

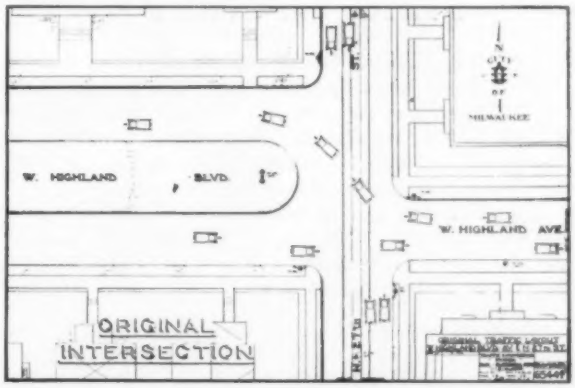
Reconstructed Intersection.—By extending the boulevard parkway to include this intersection, and by tapering the west end of the viaduct, a perfectly smooth streamline traffic chan-

NORTH 27TH STREET AND WEST HIGHLAND BOULEVARD AFTER RECONSTRUCTION



TWO VIEWS OF THE INTERSECTION AT EAST MASON STREET AND NORTH PROSPECT AVENUE AFTER RECONSTRUCTION

nel was effected. This improvement proved very successful and has been extremely popular.



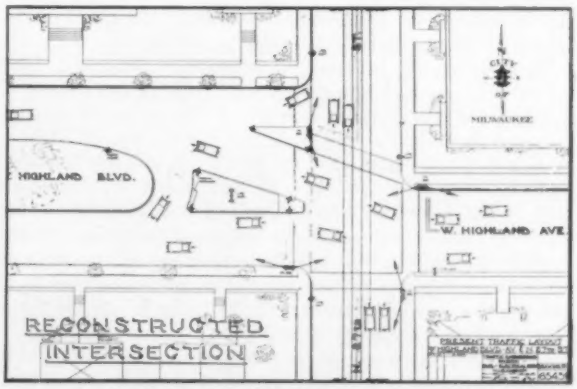


DIAGRAM OF THE ORIGINAL AND THE RECONSTRUCTED INTERSECTION AT NORTH 27TH STREET AND WEST HIGHLAND BOULEVARD

East Mason Street and North Prospect Avenue

Original Intersection.—In this case, the original intersection presented an enormous open paved area across which motor-vehicle travel was anything but safe, and crossing on foot was extremely hazardous. Because of its size and large radii, motorists had no way of telling what course approaching motorists from the opposite direction or from the side might choose to take. For the pedestrian this uncertainty of the vehicular movements was even more disconcerting.

Reconstructed Intersection.—In reconstructing the intersection by the installation of channelizing islands, safety and facility for both motorists and pedestrians was provided. The enormous crossing distances for pedestrians were broken up into small crossings of about 30 feet from one point of refuge to another. With the installation of triangular islands it was possible to expedite the vehicular traffic in a most advantageous manner, namely, by providing two special, individual right-hand turn lanes, which are not interfered with by conflicting motor-vehicle traffic and which are stopped only long enough to allow pedestrians to cross a 20-foot strip. In practice, to most motorists, when the signal goes red on the right-hand turn, it means merely a slowing-down, so short is the time.

North 27th Street and West Highland Boulevard

Original Intersection.—The diagram on p. 45 shows a rather awkward intersection for motor vehicles to negotiate and a very unsatisfactory one from the pedestrian's standpoint.

Reconstructed Intersection.—By the simple medium of cutting through the existing standard center plot, and the construction of two small islands, a layout was obtained which, as can be readily seen from the diagrams, made motor-vehicle traffic much smoother, and gave the pedestrian a definite pathway with frequent points of refuge. A cut-off was also supplied for vehicles wishing to make a "U" turn so that they would not have to enter the congested and conflicting portion of the intersection.

Some of these intersection layouts may seem complicated and confusing. That they are simple and easily understandable, however, was definitely demonstrated at the time they were placed in service. Each and every one of them was opened up without any police supervision whatsoever. Vehicle traffic at once flowed smoothly and naturally without any indecision or difficulty, and the pedestrian traffic likewise.

One of the outstanding reasons for the success of these installations is the fact that the limits or area under control at each intersection are clearly defined by the placement of traffic devices, whether control be by traffic signal, sign, or pavement marking. In every case the traffic control signal, sign, or marking is placed at the point of obedience, so that there can be absolutely no mistake. A second or running signal is installed at the left-hand side at a location where it is of greatest value to the faster-moving center lanes of vehicular traffic and to those making left-hand turns.

In the diagrams, some instances are shown in which there are three distinct points where stops might be made. If the signalization and signing were not positive, and not uniform, but instead left the interpretation of their meaning to choice and imagination, these installations would not be successful. Any mistake would cause confusion, and absolutely void the effectiveness of the installation.

Third World Power Conference Next Month

WHEN the program for the Third World Power Conference was first made available, several months ago, Morris L. Cooke remarked on the great rôle of electricity as the deliverer from drudgery. He also observed that in that millenium, people would have found something to occupy them in place of the routine scuffling for existence.

This is beside the immediate point of the Third World Power Conference, to be held in Washington, D. C., September 7-12; but it does suggest the motive, conscious or not, behind the intensifying public concern about all phases of electric power.

These conferences are held every six years: the first was in London in 1924; the second, in Berlin in 1930. The present one is fortunately placed, in that it has at its command the meticulous findings of the Federal Power Commission, which in three years has developed the makings of the chart of future power development in this country.

It is interesting to note that whereas at the earlier Conferences the technical aspects were stressed, in the coming Conference the accent will be placed on the economic and social sides of the subject. These three legs indeed need to be kept the same length in order to support Pandora's box holding the gifts which will be bestowed on mankind in the full outpouring of the Electrical Age. It will of course be remembered, however, that though engineers know how to produce electrical energy in any quantity that can be paid for at prevailing rates, they do not yet know how to make it cheaply enough to be used for heating in cold climates. Theirs is the job to see the race through between electricity and oil.

Sharp reductions in the cost of a product, however, usually follow close on the heels of a rapidly increasing demand for it, and conversely, reductions in cost are invariably followed by a stimulation in the demand for it. It is the business of the social forces to create a desire for its use, and of economic forces to stimulate or retard its use. Such has been the experience in the field of electric power. The initial purpose of electricity, to provide light, has become an urban matter-of-course, and the farmers are now accepting it as an overdue necessity. Its value as power was also recognized at once. The toaster was a step in universal acceptance. The next step was the vacuum cleaner and the electric refrigerator. Universal use in cooking, and then in air-conditioning and heating, wait on the scientists and the engineers.

The use of electricity, like the movies and radio, is a leveler upward, tending to bring all nations to the same standards. Hence a World Power Conference, whose broad spread is indicated by the list of papers and authors to be contributed by the United States. It is expected that attendance will reach 3,000, of whom 700 will be Europeans.

There will also be extensive exhibits and tours, but the meat to be chewed over during the next three years at least, should be found in the papers and especially in the statistics. Great dreams are materialized through knowledge of existing facts and trends which stimulate the invention and design that build in detail the myriad material parts and pieces of the economic and social plan.

Municipal officials will be especially interested in the subject assigned to E. F. Scattergood, "Organization of Publicly-Owned Utilities.". Other papers on the program of importance to readers of THE AMERICAN CITY include: "Trends in the Utilization of Power Resources," by Dr. Harlow S. Person, Consulting Economist, and Dr. Vannevar Bush, Dean of Engineering and Vice-President of Massachusetts Institute of Technology; "Organization of Private Electric and Gas Utilities," by Robert E. Healy, Member of Securities and Exchange Commission, and James F. Fogarty, President, North American Co.; "Public Regulation of Private Electric and Gas Utilities," by James C. Bonbright, Trustee, New York Power Authority, and William E. Mosher, Syracuse University, and John E. Zimmermann, President, United Gas Improvement Co.; "Planned Utilization of Water Resources," by Arthur E. Morgan, Chairman, TVA, and Harrison G. Roby, Byllesby Engineering and Management Corporation; "Utilization of Small Water Powers," by Dr. H. H. Bennett, Chief, Soil Conservation Service, U. S. Department of Agriculture.

There Is No Need of Faults in Brick Pavements

An Analysis of All Factors, from the Subgrade to the Surface

By JOHN S. CRANDELL
Professor of Highway Engineering,
University of Illinois

YOU will recall the story of the man who builded his house upon the sand, and you recall what happened when the storm came. For the past thirty years I have wondered why specifications still call for a sand cushion under a brick pavement. They are still current despite all the failures directly traceable to the sand cushion; despite the improvements that have been manifest when other types of cushion are used; despite all the exhorting and preaching of the brethren who have made brick pavements a life study.

Several things have dulled the good record of the brick pavement. The bricks themselves are not often at fault, although, of course, there are occasional lapses from perfection. But, given a well-drained subgrade, a good base, a satisfactory bedding course, a good filler, and good bricks, the pavement will be a credit to its designers and builders for years to come if the workmanship is good. In other words, there are many factors that enter into the production of a brick pavement other than the bricks themselves. And this fact is often lost sight of even by sensible persons who should know better.

Foundations

Let us assume that the subgrade is good—and the drainage problem has been solved before we begin to build our pavement. The next thing is the foundation. It is generally assumed that a concrete foundation is the best. However, Morgan P. O'Brien, City Engineer of Springfield, Ill., says that the old pavements are valuable as foundations for new brick surfaces, and that it is a mistake to remove the old pavement simply to lay a new foundation. In other words, he believes that we should make use of what we have. And he is right. If it will act as a good base for the new top, there is no more reason why we should destroy the old pavement already in place than why you should tear up the floor in your house and lay another in order to put down a new rug. Perhaps the old pavement is rough and uneven. If so, it may be given a leveling course of cement mortar or bituminous concrete. If it is too narrow, then a concrete strip and edging may be laid, as has been done on several hundred miles of road in Illinois.

If the old pavement is wholly unsuited to the new brick top, or if there is no pavement existent, then a concrete foundation is called for. In this case I am not in favor of a rich mix, nor of expansion joints, contraction joints, or other such costly and faulty schemes. A lean concrete base 5 inches thick is, to my mind, the best that can be selected. The contraction cracks that form will be small, and there will be no likelihood of blow-ups in summer. Light reinforcing may be used to minimize the troubles that will come from the cracks which surely will form in the base. It will be of interest to many to know that a 5-inch lean-mix concrete base has carried the heavy traffic of New York City for many years. There is no good reason why expansion and contraction joints should be introduced with this type of base, but if a rich mix is laid, the story will be different.

Sand Cushions and Slag Cushions

After the base is laid, comes the most perplexing problem. There are advocates of all kinds and conditions of bedding courses. The old-timer, who should know better, often will tell you that the only thing suitable is a sand cushion, two inches thick. He will say this although he knows that the sand cushion has spelled the ruination of many a brick pavement. Then there is the advocate of granulated slag, who can point to some very good jobs to support his argument. Then the cement mortar enthusiast, and the asphalt-sand-mastic apostle, the tar-sand-mastic healer, the emulsified asphalt doctor, and many lesser new-dealers. We are likely to be quite addled if we listen to them at all, and we may be disgusted with results from several of them. What shall we believe? What have been the results to date? Let us look at the matter dispassionately, with our minds free from sales arguments of any kind. There has been much bally-hoo, and we must free ourselves from it.

With no hesitation we may discard the plain sand cushion. Its defects are so apparent that even the meanest comprehension must be cognizant of them. Granulated slag is far better than the best sand cushion. It is said that slag, in the course of time, sets up under the bricks, much as concrete does, and hence forms the ideal cushion course, since it does not set as soon as the bricks are laid, but takes its time and sets after the bricks have finally come to rest after a few months. This statement is and is not true. Sometimes yes, sometimes no. I personally have examined many brick pavements laid on slag cushions. I have found the slag set up sometimes, and sometimes not. I do not know the answer. Was there any difference in the pavements? Sometimes. One thing seemed certain to me, and that was that inequalities in the brick top were due to loss of cushion through cracks in the concrete foundation, and this happened only on those pavements where the slag had not set up, but was acting just as sand acts, as individual grains. However, there was never that unevenness of surface where slag is used that is found where sand is the cushion, because the friction between the particles of slag is so much greater than between the particles of sand, and therefore the slag bed "stays put."

Granulated slag is not to be found everywhere, and therefore the transportation charges on it preclude its general use, even if it were a better material for the purpose than it really is.

The Cement Mortar Cushion

If a cement mortar cushion is spread, then the bricks must be laid on it before it sets, so that they may be suitably embedded in it, otherwise the inequalities in the bricks themselves will prevent their being laid firmly and rigidly. The consequent action will be that traffic is a hammer and the mortar is an anvil, instead of a cushion.

If the bricks are laid in the fresh mortar, they will adhere to it, and then they cannot move when changes in temperature occur. The consequence of this is that there are shattered bricks, disrupted cushions, and a decidedly faulty pavement. The cement mortar cushion, although it possesses some advantages, has not been uniformly successful.

The Bituminous Mastic Cushion

The defects apparent in the materials discussed lead to the trial and the adoption of the bituminous mastic cushion, consisting of a bituminous binder and sand, mixed so as to provide a bedding course that will support the bricks well, and will not change shape, flow, or be lost through cracks in the base. As the fond parent of this type, I have been much interested in its use and abuse. It was in 1912 that I began laboratory experiments on it. In 1920 I had the opportunity to try it out in practice in East Water Street, Syracuse, N. Y., where a wood block pavement was laid on a tar-sand mastic cushion. It has been thoroughly successful. My original experiments were with tar. Since then I have tried all the commercial bituminous products. I found that the ideal proportion of bitumen to sand is 7:93, by volume. If more bitumen is used, a sloppy mix results; if less, then the mixture dries out in the course of time, and there is left only some dirty-colored sand.

The bituminous mastic cushion has become the standard in many states. Yet there are numerous apparent failures of it already. After watching many jobs, and conferring with those in authority, I am of the opinion that in the cases where it has not been successful the cause is the incorrect proportioning of the ingredients. Contractors do not like as much as 7 per cent of bitumen; it costs more than sand, and the trouble of mixing and laying is greater than if the amount is cut down to 4 per cent or less, which all too frequently they have succeeded in having approved. The wrong bitumen has often been used, which makes a rather worthless mix. Careless workmanship also adds to the negative side.

The Brick

The lug block has re-entered the field. It is now being used more than any other kind. The most modern variety is made with the wire-cut surface uppermost. This should reduce skidding accidents. Lugs assure the entrance of filler into the joints, and, if large enough, insure its penetration to the bottom of the joint as well. The lugless brick too often prevents the filler from entering the joint at all.

The de-aired brick has made its appearance. It is manufactured by removing air from the clay or shale after it leaves the pug-mill. The de-aired brick is being experimented with, and there are indications that it may be superior in some respects to the regular kind.

Joint Fillers

Now that we have laid the brick on a bituminous mastic bedding course, over a lean concrete base, which was laid over a well-drained (and perhaps stabilized) subgrade, we have but one step more to finish the pavement. We must fill the joints.

Years ago (and, alas! sometimes today) the joints were filled with sand. This was a grievous error. Coal-tar pitch was then tried, and it was partially successful, but horses' hoofs chipped it out in winter, and it tended to run in summer. Cement grout was next. Sometimes it was wonderfully successful, and then again it was a woeful failure.

Asphalt cement was tried, and today it is the most used of all the many that have been considered.

Plastic sulphur is the newest to be experimented with. It gives promise at least of being an interesting rival of asphalt. One of its grave defects is the difficulty experienced using it in practice. But once in place, it should be a good filler.

There would be little argument against asphalt or tar if only they would stay in place. Both tend to exude, and when they are spread by traffic over the surface of the brick, they make a bituminous surface that stays and wears and wears and wears. In fact, the exudation may be so great as to prevent the brick from being exposed to traffic for years. This used to be a good talking point for the asphalt salesman. But it has been found that this exudation of asphalt makes the pavement so slippery in bad weather that skidding accidents are frequent. In order to save the situation, resort has been made to the removal of the filler from the surface. Of course there may be a rather thick layer of asphalt on the surface directly after the filler is applied, since it is customary to pour it over the bricks and let it find its way to the bottom of the joints. This surface asphalt is removed immediately by scraping it off. In order to effect this, the surface of the bricks is either treated with a coat of whitewash, or sprayed with a solution made of calcium chloride, starch and water. If the weather is not hot, water does just as well. The amount of asphalt scraped off and re-used more than compensates for the cost of removal.

But next summer when the temperature rises and rises until we cannot sleep, the asphalt in the joints rises and rises until it comes out of the joints and is again spread by passing traffic over the previously clean brick surface. Scraping must again be resorted to if we would keep the bricks free from asphalt. Sometimes this has had to be done for three successive summers.

While coal-tar pitch has some of the same proclivities, it has the virtue of chipping off the surface in cold weather.

A better filler is the so-called bituminous mastic, which is made by mixing tar and sand, or asphalt and sand in a half-and-half mix, by volume. This is expensive to make and difficult to handle. The sand must be heated to about 400° F., and the bitumen must be of a suitable temperature for ready pouring. The first mastic-filled brick pavement was laid at Columbus, Ohio, in 1915. The mix was coal-tar pitch and sand. It is in excellent condition today. Thereafter there were many brick pavements laid with this type. All were successful if lug bricks were used.

If that is so, why do we not use mastic filler today?

It is too expensive to buy, and too troublesome to make, except in, or close to, big cities where hot sand and suitable mixing plants are available.

The Future

Brick roads do not wear out. Those that are properly laid will outlast the present generation. But care must be taken with subgrade, foundation, bedding course, and filler.

Brick pavements can and should be laid so as to ride as well as any other type at high speed. There is no justifiable reason why there should be any unevenness greater than ¼-inch in 10 feet.

A brick pavement is high in first cost. If it is properly laid, the maintenance costs are trifling. If it is improperly laid, they are outrageous. Therefore, the same care should be taken to lay the pavement well that is taken to build a first class automobile. A brick pavement reflects either credit or dishonor on both engineer and contractor, who should hold high the standards of construction.

ACKNOWLEDGMENT.—From a paper presented at the Annual Conference on Highway Engineering at the University of Michigan.

This Water Department Prints Its Own Forms

By C. E. HOGEBOOM
City Clerk, Wheaton, Illinois

WHEATON is a purely residential city of approximately 8,000 population, 25 miles west of Chicago. It covers an area of approximately 4.5 square miles and, although at the present time there are only about 2,200 water meters on the system, nearly the entire area of the town has to be covered in order to read all the meters. The meters are all read by one man, who in his spare time tends the pumps and keeps the plant clean.

Division into Districts

For an even distribution of the work of reading, billing and collecting, the city is divided into three districts known as 1, 2 and 3, or pink, white and blue respectively. Meters in each district are read and billed and bills collected every three months. There are approximately 550 meters in District 1, 1,000 meters in District 2, and 650 meters in District 3. Because District 2 is in the most densely populated section of the city, it takes no more time to read the larger number of meters in this section than it does to read half as many in the sparsely populated districts.

Meter Reading

The meter reader's cards are bound in ring-type loose-leaf books with hard covers. On the meter reader's card is entered the meter reading. There is a card for each meter, and on it are written the names and addresses of the tenant and the owner, and the account number. In case access cannot be gained to the premises to read the meter, a Government post-card is left by the reader, so that the consumer can read his own meter and send the card to the office. In this way it is not necessary for the reader to make an extra trip to the premises in order to obtain the reading.

All bills are sent to the consumers on forms printed by the employees of the office on one-cent Government post-cards by using an Elliott addressing machine, and after the printing of the cards, addresses are put on by the same machine from stencils previously cut. To the left of the address appears the account number prefixed by the number of the district, as 1-1629. This number goes on the card at the same time it is addressed; in fact, the number is part of the address. The meter reader enters the present reading from the meter card on the bill. The appearing of the account number and address on both cards prevents any error in posting meter readings from meter cards to bill cards and vice versa.

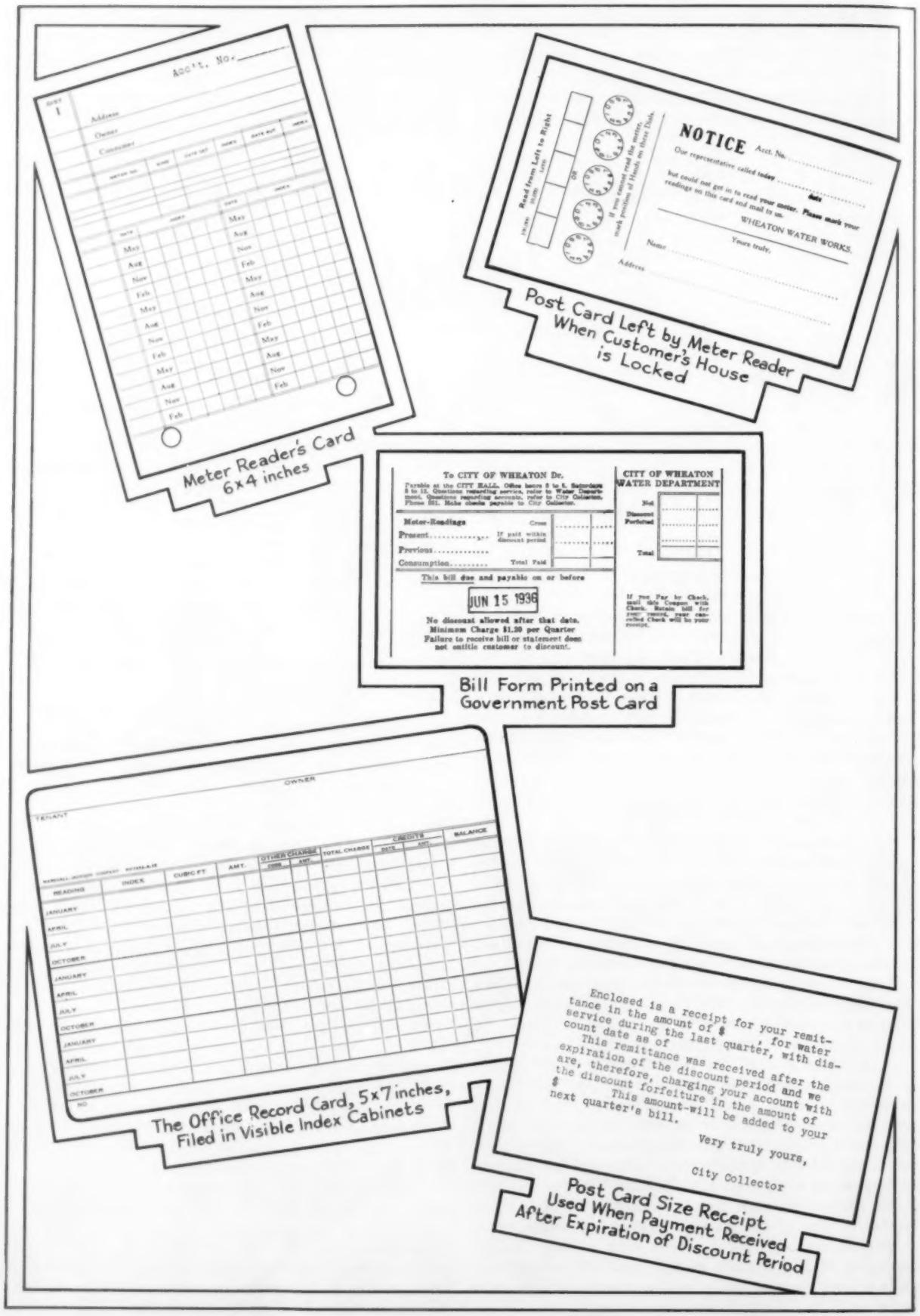
Billing

When the meter reader has posted his readings on the bill forms, they are turned into the central office, where, under the supervision of the City Collector, the previous reading and consumption are posted, and the amount of the bill is computed and posted in both net and gross amounts. As consumption for each account is computed, it is compared with previous usage. If the consumption is exceptionally high or low, the meter reader is directed to re-read and to make an inspection of the premises if necessary. The result of his inspection and re-reading is reported to the Water Department office and transmitted to the consumer. The user always appreciates a notification of appreciable change in consumption, especially if the bill is high and a remedy can be provided which will lower his consumption.

When the office is making out the bills, it also enters the same information on 7x5-inch record cards, which are filed in 12-drawer visible card index cabinets. Three of these cabinets, which hold the record cards, are mounted on a steel rack with rubber-tired wheels, which makes it possible to move the file in and out of the vault easily. The office file card shows the consumption for each quarter, the charge for water and other service, credits, and the balance due. The record cards are white, blue and pink, corresponding to the district to which they pertain. The accounts are filed numerically for each district. Both sides of the card are used; thus one card will last a period of seven years. The drawers are approximately 1½ inches wider than the cards, so that when the bills are made out, the record cards are pushed to the left side, and as bills are paid, the cards are pushed to the right.

Card signals are used in connection with the record cards. For those accounts where special readings have been made, a red signal is placed at the bottom of the card; for those accounts where discounts have been forfeited and the bill has been paid in the net amount and the balance is carried forward, a blue signal is placed on the card; and a black signal is placed on those cards where a bill has not been paid after becoming delinquent.

A 3x5-inch card index file is maintained for every street address in the city. Street names are filed alphabetically, and following each street name are cards for every address, filed numerically. On each card, besides the address, is the account number for that address. By this method it is possible to locate the account easily when the bill itself is not brought along by the consumer when making


Acct. No.
Address
Owner
Customer
Meter Reader's Card
6x4 inches
NOTICE
Acct. No.
Our representative called today
but could not get in to read your meter. Please mark your readings on this card and mail to us.
WHEATON WATER WORKS.
Yours truly,
Name
Address
Read from Left to Right
Post Card Left by Meter Reader
When Customer's House
is Locked
To CITY OF WHEATON Dr.
CITY OF WHEATON
WATER DEPARTMENT
Meter-Readings
Present
Previous
Consumption
Gross
If paid within discount period
Total Paid
Net
Discount
Forfeited
Total
This bill due and payable on or before
JUN 15 1936
No discount allowed after that date.
Minimum Charge $1.20 per Quarter
Failure to receive bill or statement does not entitle customer to discount.
Bill Form Printed on a
Government Post Card
OWNER
TENANT
READING
INDEX
CUBIC FT
AMT.
OTHER CHARGES
TOTAL CHARGE
CREDITS
BALANCE
JANUARY
APRIL
JULY
OCTOBER
The Office Record Card, 5x7 inches,
Filed in Visible Index Cabinets
Enclosed is a receipt for your remittance in the amount of $, for water service during the last quarter, with discount date as of .
This remittance was received after the expiration of the discount period and we are, therefore, charging your account with the discount forfeiture in the amount of $.
This amount will be added to your next quarter's bill.
Very truly yours,
City Collector
Post Card Size Receipt
Used When Payment Received
After Expiration of Discount Period

Our bill to you, in the amount of $_____ for water service has gone past the discount period and is now overdue. You have probably overlooked it, and we take this means of calling it to your attention, and ask that you favor us with a remittance by _____

CITY OF WHEATON

Acct. No._____

Name —

Delinquent Notice, Post Card Size

FINAL NOTICE

We mailed you a bill for water service in ample time to permit you to take advantage of the discount available to _____

When you failed to avail yourself of the opportunity, we called the matter to your attention again, showing the gross amount.

This is to inform you that, unless payment is made at the City Hall before _____ your water service will be discontinued without further notice. If "shut off" is made, a charge of $1.00 must be paid before the water will again be turned on.

The amount of your bill is $_____.

CITY OF WHEATON

By _____ Collector

Final, or Shut-Off, Notice, Post Card Size

ORDER FOR REPAIR OF WATER METER

To the City of Wheaton,
Water Department,
Wheaton, Ill.

You are hereby authorized to remove and make necessary repairs to put into first-class operating and accurate registering condition my water meter located at_____ and I agree to pay the reasonable cost of material and labor necessary to make such repairs.

Signed_____

Meter Repair Order, 4½×8½ inches

City's No. ..... Make ..... Size ..... Mfgr's No. .....

Purchased by (City) (Consumer) Date of Purchase ..... Cost ..... Meter Connections

METER RECORD

ADDRESS	INSTALLED		READING	REMOVED		READING
	ACCT. NO.	DATE		DATE	REASON	

TEST AND REPAIR RECORD

DATE	TEST % t			DUTY SINCE LAST INSTALLATION		NEW PARTS USED	COSTS		REMARKS
	MIN. FLOW	INTER FLOW	MAX. FLOW	DAYS IN SERVICE	CU. FT. OF WATER REGISTERED		PARTS	LABOR	

Front and Reverse of Meter Record—A Life History

Service No. .....

City of Wheaton, Illinois

No. 1836

APPLICATION FOR WATER SERVICE

Deposit $ ..... Date .....

The undersigned hereby applies for water service for the following property in the City of Wheaton:

and agrees to pay all charges for the furnishing of such service and for all water supplied, promptly, as the same become due and payable, in accordance with all existing and future rates and regulations which may, from time to time, be in force.

The deposit in the sum of ..... Dollars ($) which accompanies this application, is to be held by the City of Wheaton as security for the payment of all charges accruing hereunder, and may be applied by said City in conformity with existing and future regulations of said City regarding water service, any remaining balance thereof to be refunded to the undersigned upon payment in full of all charges up to and including the discontinuance of water service under this application.

SIGNED .....

Address .....

The following Guaranty if signed by a resident owner of real estate in the City of Wheaton, may be furnished in lieu of deposit.

Guaranty

The undersigned, being a resident and owner of real estate within the City of Wheaton, for and in consideration of the furnishing of water service on the within application, does hereby unconditionally guarantee the payment of all charges made by the City of Wheaton in connection with furnishing water service and for water supplied on such application, up to and including the time when service under said application is discontinued, promptly from time to time as the same become due and payable, hereby waiving notice of the acceptance of this guarantee, and of default by the applicant within named.

WITNESS my hand and seal, this ..... day of ....., A. D. 193....

..... [SEAL]

Address .....

Application for Water Service

payment. In such cases, a duplicate bill is made up from the record card on a regular bill form printed on cards the same size as Government post-cards.

Payments and Delinquencies

The bill has a heavy line about two inches from the right end, dividing the card into two parts. When the bill is paid, the card is cut through at this line and both parts are receipted. The consumer receives the left or larger part, and the city retains the right or stub end. On the address side of the city's portion appears the account number prefixed by the district number. The amount paid is noted on both parts of the bill. From the city's stub portion of the bill the amount and date paid are posted onto the customer's record card.

The water bills are rendered in net and gross amounts. All bills are sent out as nearly as possible on the first of each month, and a date, 15 days after the date rendered, is stamped on the bills. Any time before the expiration date a consumer may pay the bill in the net amount. If a bill is not paid by the discount date, the bill is collectible in the gross amount. A greater total of the bills is paid in the discount period, for the difference between the net and gross figures is worth saving.

If a bill is not paid within 30 days from the time it is rendered, a notice, using unstamped Government post-cards again, is mailed to the consumer, calling attention to the unpaid bill. If the bill still remains unpaid ten days after the notice is mailed, a "final notice" is sent, allowing the consumer five more days in which to make settlement, and if no agreement or payment is made by the expiration of this time, the water is turned off until the bill is paid, and a $1.00 charge is made for turning on the service.

Should a consumer pay his bill by mail in the net amount and it is received after the discount period, he is sent a receipt of the amount paid, with a notice printed on a card which tells him that the remittance was received after the discount period, that his account is being credited with the remittance, and that the discount forfeiture is being carried forward and will be added to the next quarter's bill. This notice is also printed by employees of the office on regular unstamped cards of Government post-card size, using the Elliott machine.

The use of one-cent Government post-cards as bills and the Elliott machine to print and address them reduces the expense of billing and collecting approximately $200 per year. This does not take into consideration the savings in the cost of printing other forms with the same machine.

Meter Repairs

In this city, all meters are owned by the tenant or the property owner. Whenever it is necessary to repair or test a meter, the Water Department will make such test or repairs as needed only after a signed order is secured from the owner to insure payment for the work. A record of meter repairs and testing is made on 5x8-inch cards, filed according to street address. On one side of the card is the "Meter Record," and the other side shows the "Test and Repair Record." These cards tell the complete life story of the meters.

All users of water are required to make an application for service on a special 5x8-inch form. A deposit of $5 is required in most cases unless a property owner guarantees the water bill, in which case the deposit is waived. This method aids collection to a high degree.

Organized Public Recreation in the Year 1935

IN 1935, communities reporting organized public recreation totaled 2,204, according to the Year Book of the National Recreation Association. Of these, 1,045 depended entirely on emergency relief funds to finance their recreational activities.

However, $21,552,621 was expended for recreation from the regular coffers of municipal and county governments. This was more than came from similar sources in 1934. Furthermore, of the $15,919,788 spent from emergency funds for community recreation, 90 per cent was used in cities which raised a part of the cost locally through taxation or from private sources.

Eighty-three per cent of all the workers paid from emergency funds also served in such cities. These facts, coupled with the fact that the amount paid for regular leadership exceeds that for 1934, indicate that to a large extent emergency workers assigned for service to recreation agencies supplemented rather than supplanted services and workers in 1935.

There were few marked increases in the number of centers and facilities of various types, although many were open in 1935 under leadership for the first time. Fewer playgrounds were reported than the previous year, and the high attendance figures for 1934 were not maintained. Nevertheless, the figures for participation and attendance at the indoor and outdoor areas indicate the tremendous number of individuals who used them. For example, there was a yearly or seasonal participation of 47,417,310 at 275 of the 605 bathing beaches reported, and the attendance at 816 of the 1,149 recreation buildings exceeded 42 million.

A marked change is noted in the use of emergency funds, as compared with 1934, when nearly three times as much money was spent for land, buildings and permanent equipment as for leadership. In 1935, on the other hand, more money was spent for leaders' salaries than for capital uses. If the reports submitted for the Year Book provide a reliable index, there was a large drop in the amount of relief money spent for improving recreation properties and developing facilities in 1935.

The following table indicates the expansion in 1925-35:

	1925	1935
Number of cities	748	2,204
Employed recreation leaders	17,177	43,976
Volunteer leaders	6,799	10,346
Cities with training institutes	115	219
Total expenditures	$18,816,165.55	$37,472,409.54
Playgrounds under leadership	5,121	9,650
Indoor centers under leadership	1,613	4,949
Recreation buildings	265	1,149
Baseball diamonds	2,831	4,197
Bathing beaches	273	605
Golf courses	153	336
Ice skating areas	1,217	2,324
Swimming pools	534	1,093
Tennis courts	6,110	9,880
Wading pools	629	1,292

Recent City Manager Appointments

ARCHIE D. TELFER, a local resident and former assistant manager of the Yates-American Machine Co., has been appointed City Manager of Beloit, Wis., to succeed George B. Ingersoll.

On June 29, Robert A Finlayson was appointed City Manager of Montrose, Colo., to succeed H. R. Elliott, who resigned to accept a position as designing engineer with the U. S. Reclamation Bureau.

CLARENCE E. RIDLEY,
Director, International City Managers' Association.

Cooperative Fire Fighting

By DeWAYNE E. NOLTING
Engineer, National Fire Protection Association

ONE of the most extensive plans for mutual aid is that sponsored by the Egyptian Fire Fighters Association embracing 60 city and town fire departments in an area of 12,000 square miles in southern Illinois. This plan was organized in 1925 following a disastrous tornado that started more than 50 fires in the town of Murphysboro and devastated it. While several neighboring fire departments responded to calls for aid from the local fire department, most of the hose threads were different, and connections to hydrants could not be made. A primary aim of the Association, therefore, became the adoption of the Standard Hose Coupling Thread.

Fifty-one pumping engines, 21 hose trucks, 9 pieces of chemical apparatus, and 5 ladder trucks may now be mobilized for an emergency. A schedule ("running card") was established giving the order in which the apparatus of outside towns is called for assistance by every town asking for aid. The schedule also shows the order in which the apparatus of these towns should move up ("cover in") to protect a town that has sent apparatus to the fire or is engaged at a serious fire of its own. Each city or town has a list of equipment of its neighbors within a radius of 25 miles.

Sometimes called mutual aid, this common-sense system for quickly extinguishing a bad fire in any town of the district requires first of all that there be a carefully worked-out plan of what each town will do in the case of an emergency. Kind hearts and willing hands are not enough, as illustrated by what happened when 16 towns in 2 counties sent 51 pieces of apparatus and 250 firemen to control a fire in the general store of a Pennsylvania community. On the way to the fire, one engine was wrecked, another damaged, one fireman was killed and eight were injured. The fire burned itself out, with a loss of $75,000 because there was no water supply.

Having the plan, the next thing is to use it promptly. As Battalion Chief J. J. Deasy, New York City, retired, said on June 4, "You can tell investigating commissions why you sent for help, but not why you didn't." Mr. Nolting outlines a number of successful cooperative arrangements and asserts that the method is sure to continue to grow in favor.

Mayors and city councils of the various cities and towns belonging to the organization are cooperating in this plan of preparedness for emergencies. Cities rendering aid do not charge for their services, but it has been customary for the town receiving aid to feed the visiting firemen, and to furnish gasoline and oil while fighting the fire and for the trip home.

Los Angeles County Set-up

An effective plan of organizing suburban and rural fire departments on a county basis is provided by state law in California. In Los Angeles County the set-up provides strong centralized control which furnishes the communities served with a system of mutual aid, as the facilities of several cities and towns may be concentrated at one place in case of a serious fire. For example, a severe storm in the Altadena district damaged a number of electrical circuits and caused 22 fires. The alarm was reported to the central office, and immediately 65 trained firemen from 13 surrounding communities responded.

In addition to stronger protection, this set-up gives all the fire districts additional services which none of them, individually, could afford. Operating as a unit, they have excellent facilities for drills and training, fire-prevention inspection work, investigation of fires, centralized purchasing, repair facilities, and a reserve of apparatus. These are advantages which ordinarily are enjoyed only by the larger city fire departments.

Fire Chiefs' Emergency Plan

In 1928, fire chiefs of Westchester County, New York, organized the Fire Chiefs' Emergency Plan to promote coperation among their departments. Of the 56 fire-protection districts in the county, 44 are volunteer departments, 8 districts are in unincorporated territory and contract with nearby districts for fire-protection service, and the other 4 are the paid fire departments of Mt. Vernon, New Rochelle, White Plains, and Yonkers. From a schedule of apparatus, equipment and man-power, each chief knows at once where he can get the help he needs for a certain serious fire in the shortest time. Each chief has listed the departments from which he may have occasion to summon aid—for example, the Chief at Mt. Vernon has chosen Yonkers, Eastchester, Pelham, New Rochelle, and New York City.

Before the plan was put into operation, the fire chiefs worked for and secured the adoption of two important state laws. The first, passed in 1931, authorizes towns or fire districts to adopt ordinances permitting their fire departments or companies to send aid to other towns or fire districts. It also provides that any loss or damage to the fire apparatus belonging to the town or district answering such a call shall be paid for by the town or district asking for the assistance. The second law, amended in 1935, provides that when a volunteer fireman is injured or killed while assisting a neighboring town or fire district, or while going to or returning from a call for aid, the town or district asking for the assistance shall pay the injured volunteer fireman, or his representative if he is killed, specified sums of money.

These laws eliminated some of the difficulties facing fire departments which render assistance to neighboring communities. The payments for damages, injuries, or deaths are fixed by the New York State law as a charge against

the persons and property liable to taxation in the community which issued the call for assistance and in which the fire occurred.

A plan similar to that in Westchester County, N. Y., is in operation in Fairfield County, Conn. It was organized in 1933.

City and County of Dallas

How a system of cooperative fire fighting between a large city and surrounding communities may function is demonstrated in the case of the city and county of Dallas, Texas. In 1921, fire chiefs from 30 towns organized and began holding meetings every three months. Each meeting was held in a different town, and at that time an inspection was made of the town to acquaint all the chiefs with all the fire-protection facilities in the county.

Owing to the efforts of the Fire Chief of the city of Dallas, an arrangement was made between the city and the county whereby the county purchased a 750-gallon pumper and the Dallas Fire Department used it for responding to calls from any of the communities in the district. A running card schedule was also drawn up, specifying the calls on which each town was to go to the assistance of his neighbor. This system led to the standardization of hose couplings in the district and increased interest in fire protection on the part of the smaller towns. Many of them installed water-supply systems.

Other Typical Arrangements

Last October in Weston, W. Va., fire threatened the destruction of a large hospital for the insane and endangered the lives of the 1,600 inmates of the institution. The chief of the local volunteer fire department, however, was prepared for a serious fire in his town. Plans for fighting this fire were made several years ago at meetings of the West Virginia Fire Fighters Association, which was organized to promote cooperation among fire departments within a radius of 60 miles from Clarksburg. This prearranged emergency agreement worked perfectly. Five volunteer companies and one paid fire department sent apparatus and men, thus mobilizing a force of 115 firemen and 15 pieces of apparatus. In spite of inadequate exits, flammable construction, and other handicaps, no lives were lost and most of the structure was saved.

As early as 1877 Boston had a fire-alarm hook-up with Chelsea in order that aid might be promptly summoned by either city. Today interconnections or mutual aid arrangements are in operation between Boston and most of the adjoining cities, such as Brookline, Milton, Newton, Somerville, Chelsea, Everett, Quincy, Revere, and Watertown.

Cambridge and Somerville work together on alarms coming from fire-alarm boxes near the city line between these two cities. Mutual-aid agreements exist among Chelsea, Everett, Malden, and Revere, whereby certain companies in each city as listed on running cards respond to second or greater alarms in the "fire" city, going either to the fire or moving up to cover-in. Quite a number of other effective mutual-aid agreements such as these exist among groups of cities and towns throughout the eastern part of Massachusetts to strengthen each other's fire defenses in responses to border-line boxes as well as in case of multiple alarms and conflagrations.

Fire departments in Campbell and Kenton Counties in northern Kentucky are operating under a prearranged schedule of assistance and covering-in in case of a large or serious fire in any town. The arrangement provides that any fire chief needing assistance will call the Covington fire headquarters, which will dispatch equipment to him according to the schedule. The chief knows beforehand exactly what assistance the Covington operator will send him. He also knows that, in case further help may be needed, apparatus from other surrounding towns has moved up to be near at hand.

In 1931 a plan was worked out among cities in northeastern Wisconsin whereby the city asking for help pays for all damages to equipment of visiting fire departments and for gasoline and oil used. Also, each city agrees to carry its own liability for injury to its men while on outside duty.

In 1917, along with the advent of motor fire apparatus and good roads, the cities, towns, and rural areas in Berks County, Pa., banded together to reduce their fire losses by mutual cooperation and standardization of hose couplings. Making it possible to use apparatus after it reached the scene of a fire was given first consideration.

A mutual-aid association of firemen in southern Cook County, Ill., had its inception about 1925, not only because of the desire to help each other in emergencies, but also to eliminate responses to out-of-town calls sent in by irresponsible persons and for which there was no necessity.

A Suggested Improvement

A method of relieving congestion in the local telephone exchange at the time of an emergency was devised by P. H. Parker as a part of a proposed mutual-aid system for the group of cities around Lowell, Mass., and lying between that city and Boston.* While this telephone problem would not be important in metropolitan areas where fire-alarm systems of the various fire departments are interconnected and concentration of fire stations makes the mobilization of fire apparatus somewhat automatic, it is important in those communities where help is requested by telephone.

Under this proposed plan, a card is prepared for each city and town included in the mutual-aid agreement, listing the equipment available from the neighboring communities in the order in which it is to be called in an emergency. Each city and town is furnished with a complete set of cards (one for each municipality in the group). This card shows the names of two "key" cities, and a list of available apparatus to aid in extinguishing a large fire and to protect the city by covering-in. In case of a fire, the local chief puts in an emergency call to his key city and states the number of pieces and types of apparatus he needs from his neighbors. The telephone service in the key city is normal and it is a simple matter for the man in charge of the fire-department switchboard in that city to call the departments in the order listed on the card for the "fire" city until he has started on the way to the fire the requested amount of equipment.

The idea of small towns that do not have their own fire-fighting facilities entering into contracts with the nearby city fire department to furnish men and equipment to put out their fires for them is growing. Many cities still fur-

* National Fire Protection Association *Quarterly*, October, 1934, pp. 130-134.

nish this service without charge, but the trend is to specify in the contract a certain charge, such as $50 per run, a flat rate per hour, or a certain rate per piece of apparatus. It should be borne in mind, however, that this is a subject distinct from mutual aid, as the matter of contracts and charges seldom enters into mutual-aid agreements. In either case, the important thing is that every community (whether it has a fire department or not) should make provision beforehand so that it will have plenty of fire-fighting facilities when needed for protection of life and property against fire.

Conclusions

There is nothing costly about mutual-aid systems or cooperative fire fighting. Drawing up the details of systematic running cards for a group of cities is not difficult. The several plans outlined above illustrate some desirable results that may be had with little effort at small or no cost. In addition to more adequate fire protection, which is the chief aim of mutual aid, standardization of hose coupling threads, better water supplies, cutting down the number of needless responses to outside calls sent in by irresponsible persons, reducing to a minimum the expense of long runs to distant towns, and the bringing-together of fire chiefs to work out solutions of common problems, are beneficial by-products of prearranged plans of mutual assistance.

While a city has no legal duty to assist in extinguishing fires outside the city limits, few cities refuse to give their services to their neighbors in case of need. City ordinances often specify that the fire chief or acting fire chief may in his discretion aid in the extinguishment of fires outside the city when requested for help by responsible persons. Also, that the governmental unit or public institution requesting aid is to pay the city for loss or damage to apparatus while answering the call, be responsible to the department for injuries suffered by the firemen, and pay for the expense of the service. In some cities, such as Binghamton, N. Y., the above provisions are not in effect in case of mutual-aid agreements between governmental units. Communities considering the adoption of mutual-aid plans should investigate the matter of liability in case of injury to firemen and damage to equipment when sending aid outside their corporate boundaries.

The idea of mutual aid or cooperative fire fighting is sure to continue to grow in favor. There are hundreds of plans all over the country now in operation, only a few being discussed in this article. Some are more carefully worked out than others and are more effective, while some plans appear to give certain departments advantages at the expense of others. City officials in cities and towns of all sizes can well afford to give the subject considerable thought. The local fire chief, the fire chiefs' and firemen's associations need their active support in any such plan for safety from fire.

Taxation and Municipal Utility Profits

By HAROLD M. OLMSTED

AN interesting light is cast on the controversial question whether municipally owned utilities should contribute toward the expenses of the city government, thus relieving taxpayers of a corresponding burden, by Howard K. Hyde, Research Assistant in the Department of Political Science, in the University of Chicago. In an article entitled "Municipal Utility Profits or Taxes?" in the May issue of the quarterly *Journal of Land & Public Utility Economics*, he points out that the use of municipal utility profits for general city purposes constitutes a tax on the patrons of the municipal utility, and he describes a study which he recently made in the effort to determine the relationship of electric bills of residential customers of a municipal plant to the real property taxes of the same persons. The study was confined to 104 customers of the municipal plant of Winnetka, Ill., a residential suburb of Chicago, having a population of 13,000, the customers being selected from the viewpoint of obtaining a representative sample of the total number. As municipal electric plants are chiefly found in the smaller municipalities, the results of the study for Winnetka are probably illustrative of more widespread conditions.

From his data showing the ratio of the electricity bill to the property tax on the residence of each of the consumers covered by the study, Mr. Hyde constructed a mathematical curve to indicate the average relationship. This curve shows a much higher ratio of electricity bills to property taxes in the case of the owners of small houses than in the case of the larger and more expensive residences. The author states: "The downward curve of the line indicates that a tax system based on electrical consumption is much more regressive than a general property tax." He also points out that the existence of a considerable variation, even within the same tax groups, indicates that the shifting of taxes from property to electricity consumption produces discrimination as compared to property taxation. He also gives reasons for believing that residential values and taxes are fairly proportional to income and that therefore taxes collected in the form of electric rates are relatively heavier for the lower income groups.

As the taxes considered in Mr. Hyde's study are those on both land and buildings, the study does not indicate the relationship of electricity bills to land values alone, unless it can be assumed that the values of residences and their sites increase proportionately. A study based on land values alone would interest those who consider such values as a better basis for taxation than land and improvements combined.

Although not covered by his analysis, the question of the taxation of non-residential property is referred to by Mr. Hyde, who cites a brief study by the Wisconsin Public Service Commission indicating that the attempt to have municipal utilities defray general city expenses tends to decrease the contribution by industries, at the expense of residential and other consumers.

The same issue of the *Journal* carries a comment by Walter E. Caine, Assistant Rate Analyst of the Wisconsin Public Service Commission, on the Boonville case, where the New York State Public Service Commission attempted to prevent the village of Boonville from including in the rates for its municipal electric plant an element of return on the "value" of the electric property, but was overruled by the New York courts. This case involved controversy over the issue of home rule and also as to the question of whether state regulation of municipal utilities should be complicated by the question of fair return on fair value, which has bedeviled the regulation of privately owned utilities.

One may well question whether the rates of local municipal utilities should be the subject of state regulation, but if home rule is allowed on this subject the local authorities in establishing a rate policy should carefully consider the relative burdens on taxpayers and ratepayers, such as are well illustrated in Mr. Hyde's study.

Site Plans of "Greenbelt" Towns

Layouts of the Resettlement Administration's New Suburban Communities Now Under Construction Near Washington, Cincinnati and Milwaukee

THE Resettlement Administration is constructing three suburban towns of low-rent homes, near Washington, D. C., Cincinnati, Ohio, and Milwaukee, Wis. Distinguished by the fact that they comprise complete communities, with stores, shops, and community buildings as well as residences, the Resettlement Administration's projects constitute one of the most striking contributions to public housing in America.

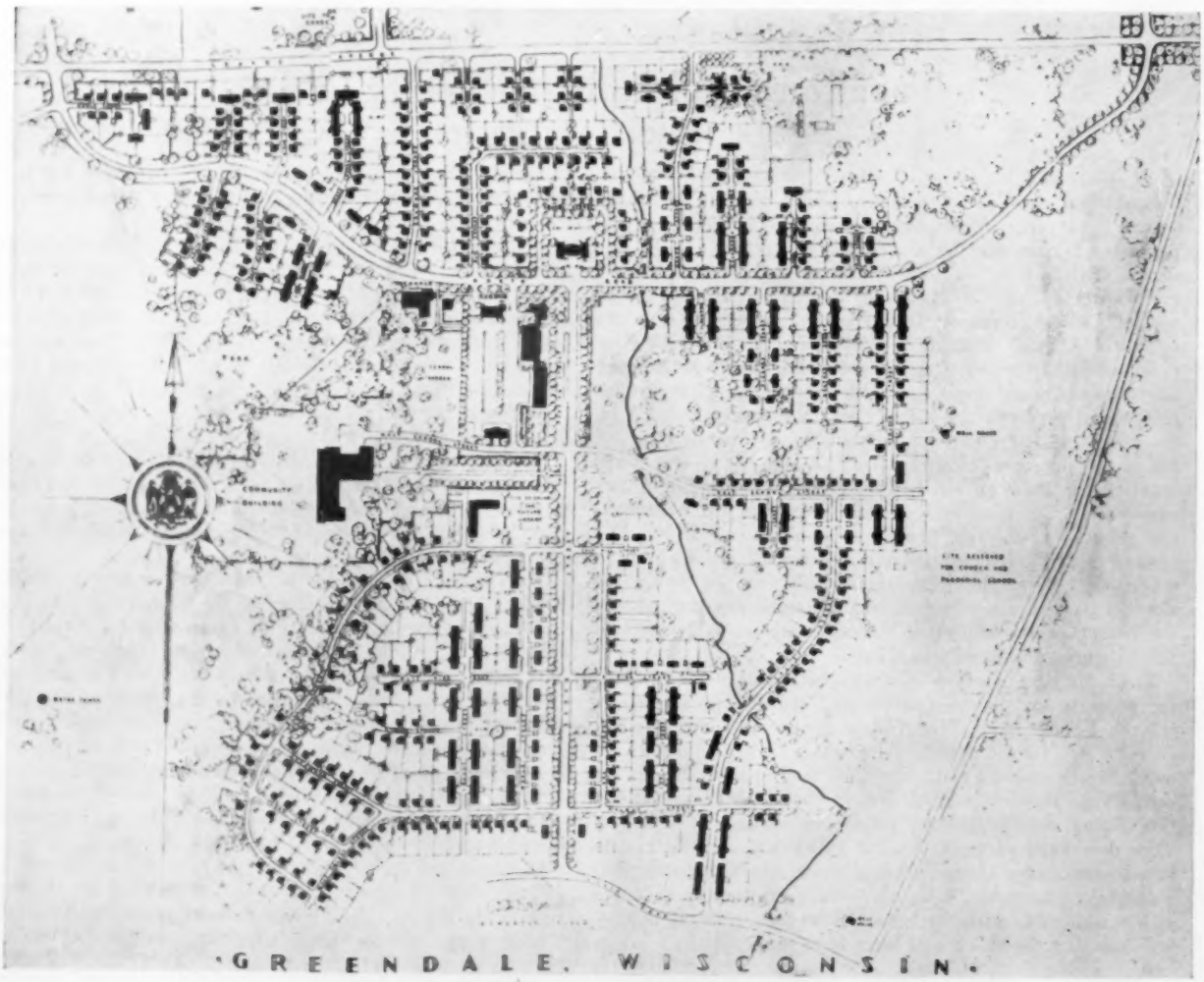
A special feature common to all three projects is the "greenbelt," a protective area of woodland and farms which surrounds the town proper, in order to prevent encroachment by any undesirable developments that might injure the residential character of the communities. This feature has, of course, strongly influenced the town plans of the projects, shown herewith. Considerable differences in the layouts for the three projects, however, have resulted from local topography, the type of homes being built, existing road systems, and other factors.

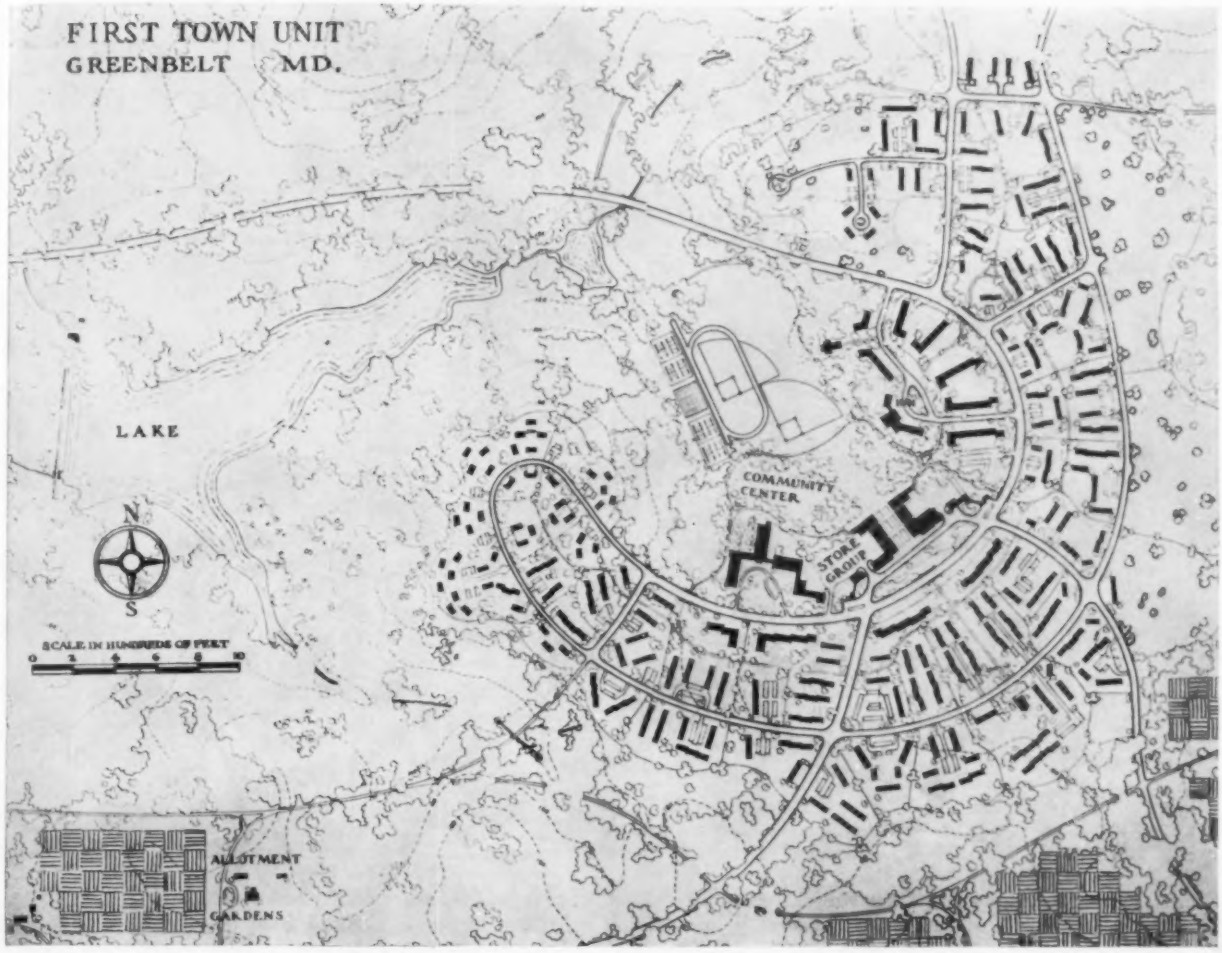
First of the three projects to get under way is Greenbelt, Md., near Washington, D. C. Approximately 450 homes are now nearing completion, of the 1,000 units which will be built. More than 4,000 men have been employed at one time on this project, most of them coming from relief rolls. Actual construction at Greenhills (Cincinnati) and Greendale (Milwaukee) started this spring, and frames are now rising for the first housing units on these locations. A fourth project*, intended for Bound Brook, N. J., was halted last spring by action of the Court of Appeals of the District of Columbia before any construction work had commenced.

Greendale—(Milwaukee)

Eight miles from the center of Milwaukee, and within easy driving distance of Cudahy, South Milwaukee and other industrial centers, the Resettlement Administration is building

* See THE AMERICAN CITY for May, 1936, pages 59-61, and June, 1936, page 5.





Greendale, a low-rent community for families in modest income brackets. The 3,500-acre property has an ultimate capacity of 3,000 families, although units are now being constructed to accommodate only 750.

The townsite, of rather level topography, lies in a green dale between, not on, main highways leading to Milwaukee and other cities. Wooded elevations protect the town from winter winds in the location finally selected, while the village lies open to the prevailing summer breezes.

The road system for Greendale is based upon a policy of designing the new town in the form of a village suited to the tradition and needs of the locality. The roads are of three major types: (1) main streets which will carry the heavier traffic, and on which there will be little if any residential frontage; (2) collector streets, also primarily for traffic, but having some residential frontage; and (3) the residential streets themselves, generally in the form of cul de sacs. The problem has been to work out this type of road system in conjunction with maximum economy, which is of course the basic objective.

A business group and a community center are located at the center of the town, on an axial main street, within one-half mile of all dwelling units. The business group contains stores, a cinema, a tavern and a garage, as well as an open-air market, a police and fire station and an administration building which will house the town management. The community center will contain elementary classrooms, industrial arts, household and fine arts rooms, a library and a combined auditorium and gymnasium.

A distinctive feature of the Greendale project, as contrasted with the other two suburban towns under construction by the Resettlement Administration, is the larger percentage of individual houses included in the plan. This was decided upon as a result of questionnaires which indicated a great preference for individual homes among residents of the Milwaukee region. The town plan has been considerably influenced by this fact.

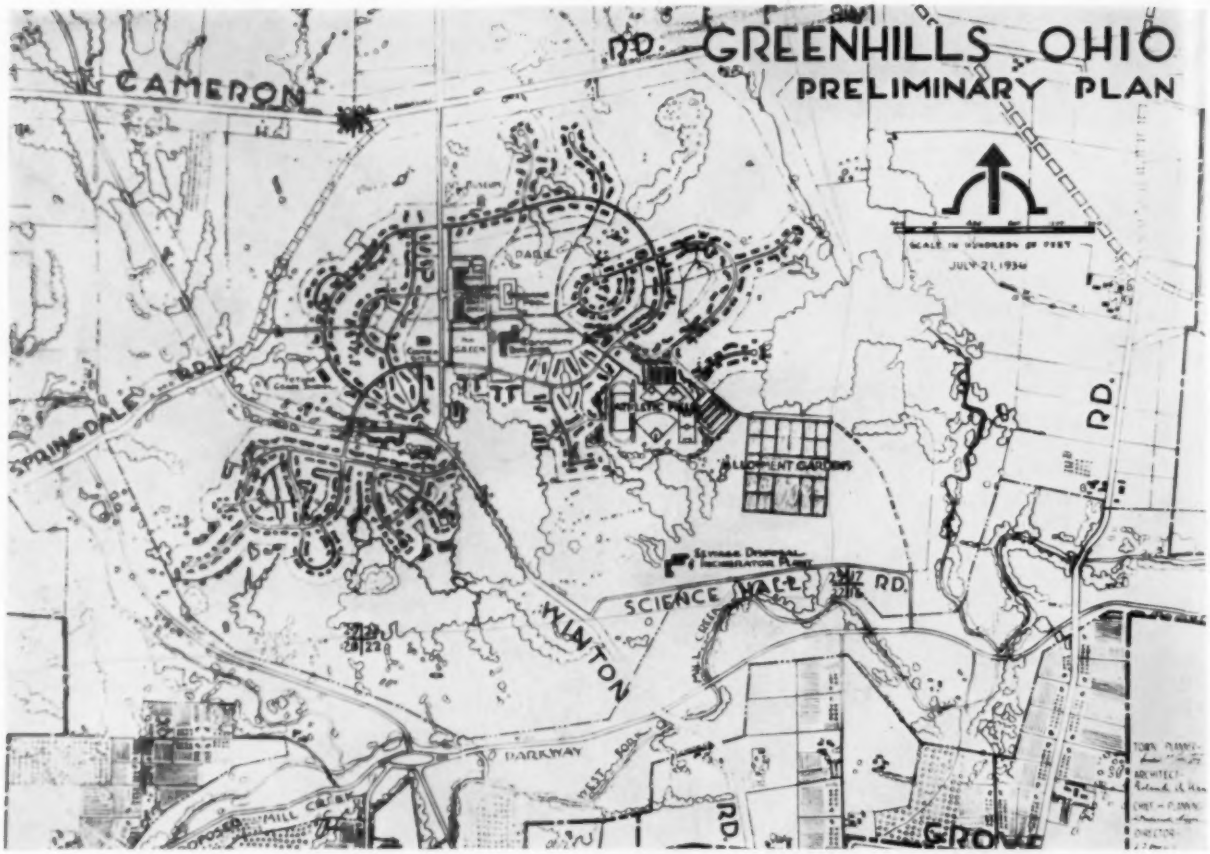
With each of the separate houses being provided with private garden space, it has been unnecessary to establish large interior parks at different points in the project. Moreover, the character of the single-house architecture has somewhat influenced the policy of keeping the country village atmosphere in Greendale. This is reflected in the fact that outlying recreation areas, aside from athletic grounds, rather than being carefully landscaped parks, will appear more as fields or pastures in natural state, where children may play as they would anywhere on the edge of a rural community.

Both a sewage-disposal plant and water supply are being developed for Greendale, as satisfactory facilities do not already exist.

Greenbelt—(Washington, D. C.)

The Resettlement Administration's planning staff has worked hand in hand with the District of Columbia and Maryland officials to fit the new community at Greenbelt, 5 miles north of the District line, into the regional plan for the entire Washington-Baltimore area.

The final plan was agreed upon after many weeks of study, during which several sites were investigated. Ultimately a high, crescent-shaped plateau was selected for the principal residential district. This site presented three striking advantages. It led to considerable economies in the arrangement



of streets, water supply and sewer lines; it made possible an orientation of houses which takes full advantage of sunshine and prevailing winds; and it required a minimum of clearing.

The main arterial road to the town follows the sweep of the crescent leading to the Edmonston Road on the east and the Branchville Highway on the south. Careful planning has led to considerable economy in the arrangement of inner thoroughfares. In the preliminary sketch 60 miles of streets were called for; the final plan serves the same number of dwellings more efficiently with 6 miles of road.

Roadways have been placed far apart, and in general they follow the natural contour of the land. The result is a series of extraordinarily large blocks of irregular shape, each containing about 120 dwelling units grouped around the edges of these blocks, leaving parks and playgrounds in the center. Footpaths run through the interior parks, instead of beside the streets. For the protection of pedestrians, underpasses have been provided where important paths cross a busy street.

A town common and the business center of the community finds its natural place at the center of the crescent-shaped townsite. Here, within easy walking distance of every dwelling, are the stores and service establishments, as well as a two-story community building which will serve as an elementary school in the daytime and as a social and recreational center at night. A recreation field, with space for baseball diamonds, tennis courts and a running track, will be built on the town common close to the school and business center. The field has been placed a safe distance from the street so that children can play without the slightest danger from traffic.

To the west of the town center, and still within easy reach of all house units, is an artificial lake, created by a newly constructed dam. The shores of this lake, for the most part wooded, lend themselves to easy development for picnic and play areas, available not only to the residents of Greenbelt, but to those of other nearby towns as well.

Water supply is obtained from the existing public utility of the Washington Suburban Sanitary Commission. A main built by the Commission leads to a standpipe on Hurley Hill, the highest point on the property. Gravity will carry water through the whole town, and out via the sewage-disposal plant located at the far western end of the property, which is also the lowest point in altitude. On Hurley Hill, there will also be an observation tower for visitors, giving an unparalleled view of the town and of distant Washington.

Fertile tracts lying south of the town have been set aside for use as allotment gardens, which will be available to tenants who wish to supplement their regular income by raising their own vegetables. Much of the remaining acreage surrounding the town has been left in its native wooded state for use as parks and recreation areas. The National Agricultural Research Center, which adjoins the Greenbelt property on the north, plans to use some of the open space surrounding the community for demonstration work in forestry and soil conservation.

Greenhills—(Cincinnati)

The center of the Greenhills project lies only four miles north of the city limits of Cincinnati, and eleven miles from the downtown business district. The property, consisting of about 6,000 acres, is situated between two main highways connecting Cincinnati with the smaller city of Hamilton, nine miles to the north. Similarly, good roads connect the property with the growing industrial area lying to the northeast of Cincinnati, where many of Greenhills' future residents are employed.

Greenhills has a potential capacity of several thousand families. Only 1,000 family units are now being built.

Both the topography of the tract and the existing roads have influenced the plan for the new town. Varying from

gently rolling land to steep slopes, the site consists of several fingered building areas separated by ravines. The building areas are not only relatively level, but also command splendid views over the surrounding country.

Two important roadways were already on the project area when the site was selected. Winton Road, a secondary highway, passes through the center of the tract from the south to north and northwest. Springdale Road, one of the circumferential highways of Hamilton County's Thoroughfare Plan, enters the project area from the west, ending at its junction with Winton Road.

The new road system consists of gently curving roadways, following the topography of the land, and extending into the fingered building areas. In conjunction with the previously existing roads, these form large residential blocks of indefinite shape. A maximum of economy has been attained in the road system, subject to grade requirements, sewerage problems, etc. Cul de sacs, similar to those found at Radburn, N. J., are utilized.

Throughout the town, the road system, together with the landscaping, particularly with trees, has been guided towards the achievement of a pleasantly informal atmosphere. This has been facilitated by leaving the ravines in a natural condition and available for recreational use. A prominent creek valley, immediately south of the first neighborhood unit, and forming a natural southern boundary to the entire property, is being retained as a larger play and picnic area in its natural state.

The town center at Greenhills is located in the focal center of the village as laid out according to these principles. It lies at the junction of Winton and Springdale Roads. Here is the Town Common, and the business center with its shops, offices and community building. Easily accessible from all parts of the town, the center has ample parking space reserved.

The combined Community Building and School is placed almost in the exact center of the community, and is surrounded by an open space. A site reserved in this area may, if desired, be utilized for a community church. The children's playground adjacent to the school is a particular feature of the town planning.

In common with other greenbelt towns, the Greenhills community is surrounded by a protective area of fields and woodland. Allotment gardens are available on the more level tracts, while the rugged slopes are reserved for recreational use. Farms occupy the outlying area.

A Promising Solution of the Parking Problem

PRACTICALLY all cities of 20,000 population or more have a parking problem. Many cities of half this size, and less than half this size, have a parking problem. Consider two Vermont cities, for instance. D. E. Moore, of the Bennington Chamber of Commerce, advises that his organization "has made recommendations to the local authorities that the parking public be considered seriously and some regulations made." Bennington's population is 7,390. From Brattleboro, population 8,709, E. J. Taggart, of the local Chamber, writes: "Like every other town or city, we do have a parking problem. Recommendations have recently been made to our local authorities regarding this problem, and these are now under consideration."

This parking problem as a matter of daily concern is generally confined to the business district—the bottleneck to which come not only the entire population but visitors as well. For years, and to an increasing degree as automobiles became a universal item of personal property, business men and municipal officials have stewed over the problem of how to reconcile the citizen's personal liberty to use the streets as he sees fit within the law, with a popular system of regulations that would induce him willingly to forsake what many regard as a basic right and not a privilege—free use of the streets.

Familiar measures have included "no parking at all" on certain blocks, and the restrictions of parking to 15 minutes, one hour, or between certain hours. These measures are admittedly expedients. Their virtue is that though they do not cure the parking problem, they make every car user conscious of it. Where these regulations are enforced, they cause ill feeling, because of necessity they are usually unequally enforced. Where they are not enforced, they are useless except as they are vicious like any other law that is permitted to lie dormant on the books.

Until July, 1935, restrictions to parking consisted of either limitations or prohibition. It was then that the parking meter reared what the Automobile Club of New York *Review* calls "its ugly head in far-off Oklahoma City, where authorities had passed an ordinance sanctioning the installation of parking meters on city streets." One month later Police Chief John Watt of Oklahoma City wrote: "The parking meters are going over in good shape. The public has accepted them and I have yet to find any one who has used them and is not for them." The first installation was 174 meters, increased last December to 575, with 1,808 needed to cover all present limited parking zones. These meters have all been paid for out of earnings. The Dual Parking Meter Co. installed them with the understanding that it would collect revenues until the meters were paid for, when the city would own them.

Says City Manager Mosier: "The legal principle of the parking ordinance is not taxation for the use of the streets, but a fee for the cost of regulating parking and keeping traffic moving. Such regulation not being needed at night, meters are not required to be used after 6 P. M. Nor are they in effect on Sundays or holidays."

No city has put parking meters over on a rough-shod basis. Oklahoma City was the pioneer, but the cities that followed suit preceded their decision with detailed study on the scene, including the questioning of motorists, as they parked, on how they liked it. Even in the pioneer city, it was not a matter of no meters one day and the system in full force the next day. The meters were installed on one side of the downtown streets. "The two sides," says Mr. Mosier, "provided comparisons which are obvious. On the unmetered side is confusion. On the metered side is order, sufficient room for every car to be parked and driven out quickly and easily, and there are usually parking spaces open."

This is of course the purpose of the parking meters, why they were invented, adopted, used. Nobody knew in the beginning whether they would earn a surplus or lose money—for the manufacturer. The idea was to weed out

of the congested district those cars that had no business to transact there. Motorists who needed to be there would either drop a nickel in a convenient slot, try to find space on the other side of the street, or park on a nearby street.

Let any man consider for just a minute how many times he needs to go to the business district in his car during business hours. Then let him decide whether he prefers to find parking space readily, if he wants it, on Main Street for 5 cents, or take a chance of having to cruise around.

In the cities where the meters are used, their efficiency appears to be undisputed. In fact, they have worked out so satisfactorily that they are in the class of hot cakes, and are being considered in cities of all sizes throughout the country.

There was bound to be objection. There always is to anything that a city charges for. The principal current objection is from the American Automobile Association and its motor clubs.

On June 6, 1936, the A.A.A. objections were stated as follows by President Thomas P. Henry of Detroit:

"First, the meters place one more tax and one more harassment on car owners already suffering from too many of both these evils.

"Second, because of their popularity with the merchants, there inevitably will be continued demands for extension of the system throughout the entire business districts of the cities once it has been started.

"Third, in effect, the system makes a motorist pay a tax for a device the primary purpose of which is to make it easier to apprehend and fine him for parking violations.

"Fourth, the system will not relieve traffic congestion, because whether the motorist pays or not, the curb area still is in use as a parking zone and is not available as a traffic lane. Concentration of attention on the parking problem diverts energy that might well be spent on more important matters regarding safety on city streets.

"Fifth, adoption of the meter system means the enrichment of a private company at the expense of the motorist through municipal ordinance. There can be no competitive bidding for the meter, since one company owns the sole right to manufacture the device, and all meters and replacement parts must be secured from this one company at whatever price it chooses to charge.

"Sixth, while the charge of five cents is claimed to be nominal, nevertheless, the aggregate charge against motorists eventually would be tremendous, particularly if merchants are successful in having the system extended throughout the business districts.

"Seventh, decision of an Oklahoma Court, although upholding legality of the meter plan, made this observation: 'If it should be disclosed by actual demonstration that these meters will produce as much revenue each day as they would the first day, then the tax imposed would be exorbitant and unreasonable, and far exceed the cost of supervision. Since this is an ordinance under the police power, no more can be collected under it than is necessary to defray the cost of operation and supervision.'"

In reply, it is suggested:

1. That there may be greater harassment in trying to find frequently non-existent places to park than in paying 5 cents for immediate service.
2. The meters would not be popular with the merchants unless they were popular with the customers, which is to say, the public.
3. A primary purpose is to make it possible for the motorist having business to perform in the business district to find a convenient place to park.
4. It relieves congestion by providing a 20-foot space for each car, by reducing search for space to those who want it enough to pay 5 cents for it. Attention has been concentrated on the parking problem for years. As soon as it is solved, more thought can be directed elsewhere. Best solutions at present appear to be parking meters and attractive modern mass transportation.
5. There are several companies selling meters.
6. It is a charge for convenience. The purpose is to render parking space available. If there is already enough available space in a city, there is no parking problem and no need for meters.
7. It is unlikely that too much money will be collected; but the law will of course take care of this point.

The city of Dallas sums up some of the results obtained by the use of parking meters as follows:

1. All-day parkers and "parking hogs" have been removed from the streets.
2. One or more parking spaces are available at all times for those having legitimate business.
3. Spacing the meters at 20 feet gives each parked vehicle adequate room to enter and leave its parking space.
4. Bumpers and fenders are rarely, if ever, damaged while entering the 20-foot space.
5. There is little or no wait for cars to go into or out of parking spaces.
6. Double parking has been eliminated.
7. Quick finding of parking space has reduced the amount of moving traffic, making possible a much more rapid movement.

The largest installation is expected to be at Kansas City, where 3,000 have been ordered at $58, the company to receive 85 per cent of the revenue until the meters are paid for; but in eight months they become the property of the city whether paid for or not. The city reserves the right to cancel after four months in place, and the company must remove them within two weeks. The 5-cent fee for 30 minutes or 60 minutes is paid between 9:00 and 5:00 on business days.

As with all other matters, however trivial, there are at least two ways to view parking meters. In one picture, their "ugly heads" are easily recognized as belonging to the genus tax collector. Here is one more burden that would be placed on the already outrageously taxed motorists.

The other way is to see the 5 cents as a fee for a privilege. In business districts where parking is permitted, motorists now have the privilege to park. The difficulty is that in most instances there is considerable wait and confusion before a *place* to park can be found.

If parking meters will usually provide the place, this is an important part of the answer to the downtown parking problem.

The Local Importance of the Property Tax

GENERAL property taxes, which less than ten years ago supplied the states with about one-fourth of their total tax income, now yield to states but 15 to 17 per cent of all tax revenues; however, they remain the major source of income for all local governments. Of approximately $4,000,000,000 raised through the property tax in 1934, it is probable that not more than $300,000,000 went to the 34 states which still use it as a revenue-producing medium, according to estimates just made by the National Association of Assessing Officers.

The $4,000,000,000 currently raised from the general property tax, the Association continues, is spread over a total assessed valuation of some $160,000,000,000, and more than 90 per cent of the taxes thus raised supplies the municipalities in this country with about 90 per cent of their total tax revenue. "These figures," the Association emphasizes, "demonstrate beyond question the importance of property tax assessors in the governmental structure. Upon these officials rests the duty of distributing this huge sum of taxes; each one must do his share in discovering and evaluating this enormous mass of property."

The dependence of local governments on the general property tax has been decreased slightly in the past decade, continues the Association statement, by the distribution of part of the revenues collected by state governments from sales and income taxes. No substantial further decrease is anticipated in the near future. Primarily for constitutional reasons, the general property tax has never been used as a source of Federal revenue, but "until a generation ago," says the Association, "it was practically the sole support of both state and local governments."

More Digester Gas Put to Work

Durham, N. C., Sewage Works Supply Own Power and Supplement Hydro and Purchased Power for City

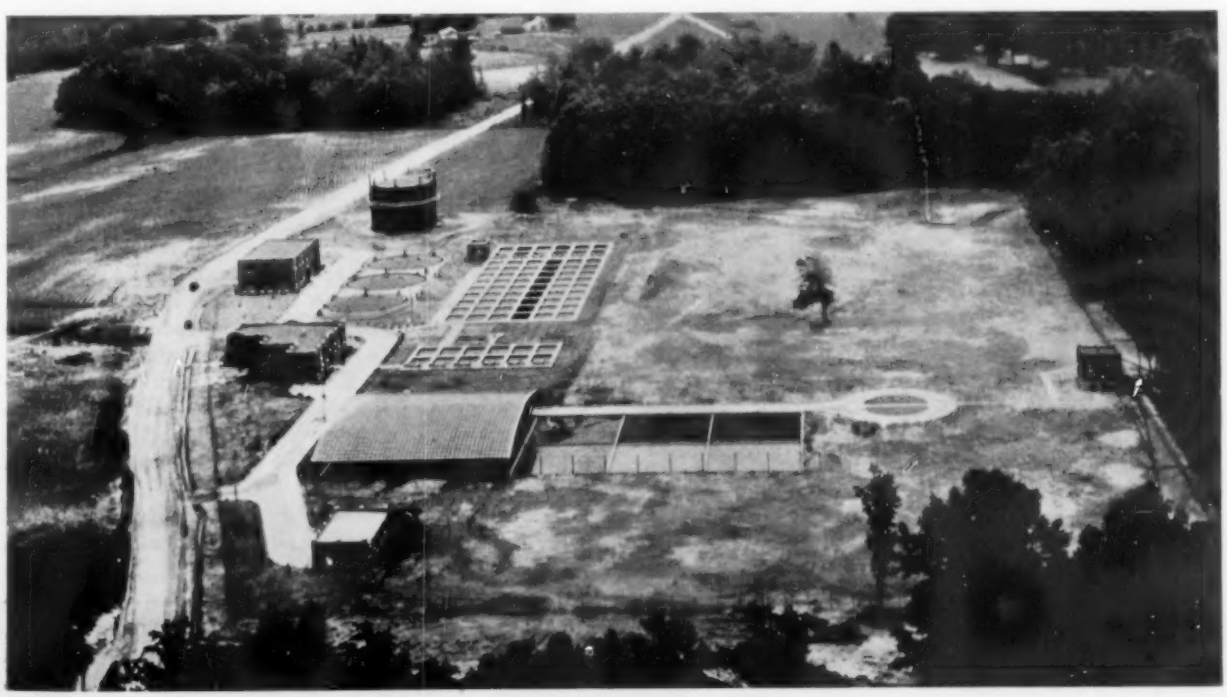
DIGESTER gas is being put to work generating electric power for municipal purposes in the new sewage-treatment plant recently completed in Durham, N. C., with a PWA grant of $760,000. The plant not only supplies power for its own operation but also supplements the regular hydro and other sources of power supplying the city. All the power needed for the operation of the sewage-treatment plant can be generated by engines using gas, which is produced by the three sewage sludge digesters. The gas is stored in a single-lift gas holder with a capacity of 50,000 cubic feet, and is all used for the generation of electricity.

The city of Durham owns and operates a small hydroelectric power plant of 1,500-kw capacity for water and other municipal purposes. It has a stand-by power arrangement with the Durham Public Service Co. These two are hooked up with the sewage-treatment plant electric output, so that whichever needs it can draw on one or both of the others for power. Thus, if the city's hydro plant does not produce enough power to fill the water service reservoir, the energy is taken from the sewage-treatment plant. When water is available, the power is repaid and used in sewage treatment, which produces sewage gas. It is planned to make this power reserve service available to the city's filtration plant soon.

Power Equipment

The power equipment consists of two 4-cylinder, 4-cycle Cooper-Bessemer vertical gas engines designed to operate on natural gas and produce 150 brake horsepower. Each is direct-connected to a 100-kw, 2,300-volt General Electric generator with direct-connected exciters. A nine-panel switchboard of all-steel construction controls all the plant operations.

An outdoor substation equipped with three 75-kilowatt, 2,300 to 23,000-volt oil-cooled transformers is connected through a 4-mile transmission line to the line between the city's hydroelectric plant and the substation of the Durham Public Service Co. This connection not only serves as a stand-by connection with the sewage plant for obtaining power either from the city's hydroelectric plant or from the Duke Power Co., but also permits an interchange of power between the sewage-treatment plant and the city's hydroelectric plant at any hour of the day or night. During certain seasons of the year the hydroelectric plant is operated only the minimum number of hours each day necessary to fill all the water service reservoirs. During the shut-down period, currrent for lighting the homes of the operators and for minor water-plant operations is supplied by current from the gas engines of the sewage-



THE DURHAM, N. C., SEWAGE WORKS, WHERE DIGESTER GAS IN CONVERTED INTO ELECTRIC POWER

disposal plant. During this period water storage for power continues in the city's lake. Whenever necessary, the gas storage at the sewage plant is drawn upon to boost the current output. This power, if needed, can be returned to the sewage plant during the hours of operation of the hydroelectric plant, thus permitting gas to go into reserve in the gas holder at the sewage plant.

During the period when the sewage-treatment plant is furnishing light to the hydroelectric plant, the main substation at the hydro plant is disconnected and a smaller power transformer is used, to avoid the heavy losses of the larger unit which amounts to approximately 40 kw.

Ten Years of Municipal Operation of Pomona's Water Works

Improvements—Rates Reduced—Self-Sustaining—Ready to Retire Bonds

By F. C. FROEHDE
Manager, Water Department, Pomona, Calif.

THE citizens of Pomona, Calif., voted in July, 1926, to purchase the private water company supplying the city, paying $850,000 in bonds. A 10-year moratorium on the payment of any part of the principal was declared to enable the new municipal Water Department to replace obsolete mains, and make other improvements. The plant was taken over by the city October 1, 1926. In the previous year the water company had reported a $10,000 deficit to the State Railroad Commission.

Growth Since Municipal Operation Began

The consumption of water in Pomona has increased from 852,000,000 gallons the first year under city operation to 947,358,900 gallons in 1935, yet in spite of this increase water levels in the city wells have remained uniform since 1931.

Many improvements have been made in the equipment of the water works. Booster pumping stations have been built and enlarged, and the total reservoir capacity has been increased from 4,000,000 gallons to 14,000,000 gallons. A total of 64 miles of new pipe lines have been laid, most of them larger than the old ones they replaced, and the city purchased 5 acres of water-bearing land on which two new wells have been drilled. These two wells developed 350 miner's inches of water (approximately 236,000 gallons per hour), the estimated value of which was $500 per inch.

Water Rates—Fire Protection and Insurance Rates

When the city took over the plant, the people of Pomona paid a minimum of $1.25 for 500 cubic feet of water. Now the minimum rate is $1.10 for 700 cubic feet.

The larger water mains laid by the city permitted the installation of approximately 400 additional fire hydrants throughout the city, which afforded better fire protection and, in many cases, afforded fire protection to portions of the city where none had been available previously. The installation of these hydrants and the increased reservoir capacity, as well as the increased pressure in the mains, were decided factors in reducing insurance rates approximately 35 per cent throughout the city between 1926 and 1936. The city now pays nothing to the Water Department for hydrant rental or for the water used to extinguish fires.

Water Plant Self-Sustaining

The plant originally cost $850,000, with 5 per cent interest on the 850 $1,000 bonds issued. Since there was a 10-year moratorium on the payment of any of the principal it would not be expected that any of the principal would have been paid off to date. However, since January, 1929, $100,000 has been set aside in a bond redemption fund out of which $68,000 face value of bonds have been purchased. Of the bonds which have been reacquired, $53,000 has been retired and $15,000 is held in the treasury fund for emergencies. On the $53,000 of bonds retired before maturity, interest savings in the amount of $28,000 have been effected. Further, there remains in the fund $35,000 in cash on deposit. An analysis of this fund shows that the monthly contributions have been more than $1,000, since $100,000 has been deposited in 87 months.

While the plant cost only $850,000, the city auditors now report a total value of $1,261,208.31, the increase being due to improvements. This does not take into consideration the value of water developed, which alone amounts to $275,000 additional. Depreciation of $247,557.59 was figured by the auditors. Improvements made to the equipment of the plant since it was taken over by the city amount to approximately $500,000, all of which has been paid out of the revenue of the plant without assuming further indebtedness.

The author has been Manager of the Department since it became the property of the city, and Frank B. Pedley is Superintendent in charge of operations.

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Turning Slippery Streets into Non-Skid Surfaces

Sacramento Has Streets Processed by Contract

By CHARLES R. BLOOD
Assistant City Engineer and Street Superintendent, Sacramento, Calif.

WITH many blocks of asphalt pavement quite rough, and other blocks which had a glassy surface, the city of Sacramento was faced with the problem of producing smooth, non-skid pavements at a moderate cost. A contract was awarded to A. Teichert & Son in September, 1935, for the planing of 500,000 square feet of asphaltic concrete pavement.

The contractor used a tool combining heating and cutting operations and a strike-off blade in one continuous forward movement. With this machine, the contractor averaged 21,000 square feet of finished work per day, and the total of 583,000 square feet was done at a price of 0.9 cents per square foot. City labor and WPA workers were used to pick up and dispose of the material planed off.

The Heating and Planing Machine

The machine consists of an 18-inch channel steel frame propelled by a Coleman front wheel drive with a wide range of speeds. The heater is an insulated hood measuring 42 x 108 inches containing eighteen Forster burners using butane or propane gas under pressure. The heat input is controlled from the operator's platform by a single valve.

Immediately behind the heater hood is the cutting block, 42 inches wide and adjustable to plane just the right amount of heated material from the surface. Only two men are required for operating the Spears-Wells Heater-Planer, one to drive and steer, and the other to control the heating and planing operations.

Type of Work Handled

On L Street in Sacramento a section of pavement had been laid by SERA hand labor during the rainy season in 1934. This cutback plant mix had corrugated badly under heavy traffic. Three trips of the Heater-Planer restored the surface to a smooth, uniform grade and cross-section. The heat seemed to harden the surface on this section of the pavement.

On Folsom Boulevard a 2-course bituminous concrete with a heavy hot oil seal had become highly polished and slippery and particularly dangerous in wet weather. Two trips of the machine removed the seal coat, leaving a satisfactory mosaic of large aggregate in the surface course, resulting in a non-skid top.

On Stockton Boulevard the condition was about the same as on Folsom Boulevard, except that the seal coat was not so fat. Before planing this section, a thin layer of sharp sand was spread and one trip of the planer was made. The sand absorbed the excess bitumen and was bladed to one side. The remaining sand blended with the bitumen, giving an excellent non-skid surface. On 16th Street, which was similar to Stockton Boulevard, except that it had a badly corrugated and heavier seal coat, two or three trips of the machine restored the surface to a smooth, uniform grade and cross-section, and in addition removed the excess bitumen, leaving a true mosaic.

M Street was paved 25 years ago with two-course Warrenite, which had bad lateral and longitudinal corrugations shoved up owing to heavy truck traffic on hot sum-

HEATING AND PLANING A STREET SURFACE IN ONE OPERATION, IN SACRAMENTO, CALIF.

mer days. Only one trip of the machine was required to restore the riding quality on this street and to stop the progressive growth of the corrugations. The surface was cut without tearing or fracturing, and various kinds of patches were leveled without injury.

Other Uses Planned

The machine is soon to be put to other uses, such as truing up the first or base course of a new pavement after laying, in order to cheapen construction costs and to do away with costly mechanical finishing, and raking. The material will be laid with a mechanical spreader to give a uniform layer, but in order to reduce costs and to improve the riding quality and durability of the pavement, such irregularities as would ordinarily be left in the base will be removed and the top course will have the benefit of being laid on a true base.

A Challenge to the Younger Men in the Planning Profession

By FLAVEL SHURTLEFF

IN the recent deaths of Robert Whitten and Henry Wright, the planning profession and the planning movement have suffered heavy blows in recent weeks.

Robert Whitten was for two years President of the American City Planning Institute and at the time of his death was Director of Planning for New York State. Admirably fitted as he was by temperament and experience to guide this new and important work in the Empire State, his death is a great loss to the state and to his chosen profession.

Henry Wright was outstanding among the nation's architects for his writings on site planning and its relation to housing. As site planner of Sunnyside, New York, of Chatham Village, the housing development of the Buhl Foundation in Pittsburgh, and of Radburn, N. J., he saw the highly successful testing of many of his theories of design. He was for several years Chairman of the Community Planning Committee of the American Institute of Architects and was long a member of the Board of Governors of the American City Planning Institute.

The death of these men is a sad reminder of the thinning of the ranks of the nation's planning leaders. Charles Mulford Robinson, one of the pioneers in the planning field, was one of the first to go. His writings, notable for their charm and conviction, have had great influence on city development. His death came too soon for him to see the remarkable spread of his doctrines.

On the first Board of Directors of the National Conference on City Planning, organized in 1910, appear the names of Nelson P. Lewis, Andrew Wright Crawford, John M. Carrere and Frank Miles Day. Mr. Lewis was the Chief Engineer of New York City. the third President of the American City Planning Institute and the second President of the National Conference on City Planning: an engineer who combined long experience and sound judgment with a gifted imagination and the ability to interpret planning to laymen with interest and simplicity. Carrere and Day were distinguished architects with the planning viewpoint. Andrew Wright Crawford was one of the small group of lawyers on whom planners and public officials depended for counsel in the drafting of planning and zoning legislation.

George B. Ford's death came in 1932. He was the fifth President of the National Conference on City Planning and the fourth President of the American City Planning Institute. He had just left a remarkable record in the professional field to become Director of the Regional Plan Association of New York when his brilliant career was tragically cut short.

Theodora Kimball Hubbard died in 1935. As Librarian for the School of Landscape Architecture at Harvard University she supervised the collection of the most extensive and valuable library of planning material in America. In her last years as Editor of Research, she labored with inspired enthusiasm to produce or perfect the unique set of research volumes published by the Harvard School of City Planning.

Others high in planning counsels who left a lasting mark on the development of American cities were George Webster, long Chief Engineer of Philadelphia, Morris Knowles, Consulting Engineer, of Pittsburgh, George E. Kessler, Charles W. Leavitt and Stephen Child, three of the country's best-known landscape architects, and Gardner S. Rogers, at the time of his death city planner for the Civic Development Department of the Chamber of Commerce of the United States.

Among the distinguished citizens of other countries whose works and writings have contributed to the advance of planning in this writing was Werner Hegemann, whose most considerable volume, "City Planning and Housing," was interrupted by his recent death.

The roll is too long for the comparatively short span of the planning movement, and the death of these leaders has placed a heavy responsibility on the profession at a critical time when there is a great need for counsel. The principles of city planning have been accepted with startling suddenness by leaders of state and nation as the surest way to combat the waste of planlessness. Champions of social and economic planning, of industrial planning, of agricultural planning, have advanced theories of control and production limitation which would have amazed the planning leaders who are gone. They would have advised steadiness and caution. Their strength lay in their sanity, their recognition that planning was not a panacea for all the ills of mankind.

The hope of the future is that the ranks of the profession will be recruited from men soundly trained in the schools, that new leaders will respond to the challenge of the times and that city, state, regional and national planning will go on to new achievements.

Sewage Treatment at Sioux Falls

Part III—Addition to Existing Plant

Unusual Design Makes Possible Effective Treatment and Delivery of Stable Effluent

By JOSEPH B. ESTABROOK
Of Burlingame & Hitchcock, Consulting Engineers
Formerly Vice-President, The Pillsbury Engineering Co., Minneapolis, Minn.

THE design of the addition to the Sioux Falls, S. Dak., sewage-treatment plant followed very closely the design of the experimental units, as far as the operating uses are concerned. However, it is expected that the reduction and general efficiency of the larger plant will be considerably more satisfactory even than those obtained by the experimental units.

Chemical Treatment Section

There is a chemical mixing tank 15 x 60 feet and 15 feet deep, equipped with a flocculator consisting of three sets of paddles operative at variable speeds against the flow in the tank, and a chemical storage tank set up on steel-work above the mixing tank. This will hold sufficient coagulant for several days' run. The ferric chloride is fed into the mixing tank through a box which contains three orifice-type chemical feeders, each operated by a solenoid which is connected to the automatic starters of the pumps in the packing plant which deliver the packing-house wastes to the city's disposal works. Thus, as each pump starts to deliver wastes to the plant through the mixing tank, an orifice opens to let additional chemical into the tank. The proportion of chemical to packing-house waste is regulated by the head on the orifices, or, in other words, by the depth at which the chemical solution may stand in the orifice box. This approximates very closely the burette arrangement in the experimental plant. The mixing tank discharges into the inlet channel of the primary clarifiers where precipitation actually takes place.

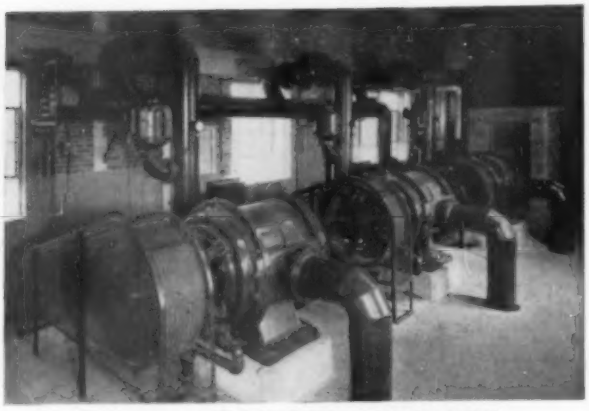
Activated Sludge Treatment

The new addition also includes an activated sludge aeration tank approximately 100 feet by 300 feet, consisting of four channels, 22 feet wide and 15 feet deep, complete with two 50-foot square secondary clarifiers. The tank is tied together by a system of cross-beams and is built as a rigid monolithic unit, without provision for expansion or contraction. This is done because of the extremely bad foundation conditions which were discovered when excavating for the tank. It was thought, however, that inasmuch as the temperature of the incoming sewage varies only from 83 degrees to 93 degrees in spite of an outside temperature range from —40° F. to 120° F., provision for temperature expansion and contraction would not be necessary. In order to further equalize the temperature, the air is preheated so that it may always be brought through the diffuser plates into the tank bottom at 90° F. Considerable expense was avoided by not providing expansion joints in the concrete tank construction.

There are two 50-foot secondary Dorr clarifiers, which provide approximately a one-hour detention period for the flow from the aeration tank at peak loads. These units are identically the same in relative depth, in speed of the scraping and all major features for a maximum flow of 8 million gallons a day as the small clarifier in the experimental plant for a 5-gallon-a-minute flow.

The aeration tanks may be fed by channels from the primary clarifiers and in that case will discharge by gravity

GENERAL VIEW OF SEWAGE-DISPOSAL PLANT, SHOWING BOTH THE ORIGINAL PLANT AND THE NEW ADDITION



THE THREE BLOWERS WITH MOTORS, DRIVES, AIR PIPING, VALVES AND SEPARATOR IN THE FAR CORNER

to the dosing tank of the trickling filters. They may be fed also from a pump house at the lower end of the plant which picks up the effluent from the filter beds. This pump house contains two pumps each of 6 million gallons per day capacity, and one of 2 million gallons. An 18-inch cast iron pipe line about 1,000 feet long leads to the inlet end of the activated sludge tank. The activated sludge tank provides a travel for the sewage of approximately 380 feet in 14 hours and assumes 25 per cent activated sludge return. The system of return sludge pumping and measuring equipment is in a chamber between the primary and secondary clarifiers underneath the slab walkway around the clarifiers. The sludge pumps are connected directly to the sludge line of the clarifiers, drawing from the sludge pocket of the secondary clarifiers.

The secondary clarifiers are 50-foot square tanks with 10-foot effective water depth equipped with traction clarifier mechanisms. The only major difference between these and the small unit is that instead of cross-travel as in the experimental plant these units are center inlet and peripheral discharge. The unique feature regarding this, however, is that they may be operated either in parallel as the primary clarifiers are, or in series. A system of sluice-gates enables the flow to be thus changed at will, and the adjustable weir plates on the peripheral channel enable the operators to adjust the liquid levels to the flow.

Blower Building

The blower building is a plain brick building which will house most of the control equipment for the entire plant, including switchboards, blowers, chlorinator and all heating and other mechanical and electrical equipment. It is sufficiently large to house vacuum filters if mechanical drying of the sludge is ever resorted to. The blowers are of the type which draws the air through water in the casing of the blowers themselves, and so a large vapor separator is a part of this equipment. There are three blowers, each of which has a capacity of 2,100 cubic feet of free air at 8 pounds pressure, and each is driven by a 100-horse-power motor. They are also supplied with alternate pulleys to vary the speed.

The air piping leading from the blowers to the diffuser plates in the aeration tank is of light cast iron. Bell-and-spigot pipe is used underground, and mechanical stuffing-box jointed pipe is used when the pipe is exposed.

There is nothing about the addition to the plant which is in any way unorthodox, except its extreme flexibility as to operation. By merely turning a few valves or raising or closing gates, the flow at almost any point may be reversed completely. The final effluent to the river may be taken either from the filters, the secondary clarifiers, the aeration tank, or the pump house. It has already been noted that the sludge banks which have been much cause of complaints are being gradually washed away by cleaner water.

Present Operating Costs and Those of the New Plant

The operating costs of the plant and the consequent charges against the city are very high, although it is too early to make a statement regarding them. There can be no doubt that, owing to its location on a very small river and the presence of a large packing house, the problem of disposing of the city's wastes is as difficult, perhaps, as that of any city in the world.

The total investment in the plant, now that the addition is complete, is somewhat over a million and a quarter dollars, which for a city of 40,000 people makes a charge of over $30 per inhabitant. This is probably three times the usual cost per inhabitant in most cities for sewage treatment only.

The operating costs of the present plant are somewhat in excess of $20,000 per year. The new plant with its use of a chemical, and the large amount of power required for blowing the air into the activated sludge tanks, will probably more than double this figure. It will not be very long before technical control of the new plant will be required. This will require the continued presence of an expert chemist who will determine from actual analysis of daily results exactly how the plant should be operated. This has been recommended to the city but funds do not enable it to take this step at this time. On the other hand, the city will obtain for this high expenditure a treatment of its wastes which will be probably more complete than that of almost any other city in the world. The extremely septic and offensive matter which is now leaving the plant and flowing into the river will be reduced to an actually clearer and more stable product than the water in most rivers, and the Big Sioux River, which of late has been a woeful streak of extreme pollution, will become a clear stream flowing over sand and gravel so as to be a pleasing part of the landscape. However heavy the burden of this expenditure and of the yearly operating costs which are included may be, the new plant will keep the city out of trouble with its neighbors and cause it to cease to be a nuisance to the countryside.

Acknowledgments

We wish to give credit to R. E. Bragstad, City Engineer of Sioux Falls, for his cooperation, careful watchfulness, and extremely valuable advice; to E. B. Gordon, Jr., President, Pillsbury Engineering Co., who designed and supervised the blowers and all the mechanical work inside the main building; to Professor L. A. Yost of the Department of Chemistry of South Dakota State College for his untiring industry and valuable advice in the experimental work; and to the city officials of Sioux Falls and all others who cooperated in this project; as well as to the contractors, the C. A. Wagner Co., of Sioux Falls, for their cooperation in constructing the well-built completed addition to the sewage-treatment works.

Refuse Collection in France

French Engineer Stresses Cleanliness and the Need to Make Work Easier for Collectors

THE refuse collected in the large cities of France varies between 0.7 and 3.8 pounds per person per year. For the same cities the weight of the refuse collected varies in summer and in winter in the proportion of 1 to 2.25. At present refuse is collected daily in almost all French cities. Only a few very small towns collect once or twice a week. Daily collection usually takes place between 6 and 10 A.M., and not at night, although this has often been advocated.

Types of Refuse Collection Equipment

M. G. Chalumeau, Chief Engineer of Lyons, divides the trucks in use or being tested in France for refuse collection into two classes: (1) those filled by hand without compression; and (2) those filled by a mechanism which compresses the refuse.

He differentiates the trucks which compress the refuse from those which do not, for this is of importance in towns which burn their refuse. In utilizing refuse it is shown that when emptied into bins uncompressed, it burns much more readily. This is because its density is less and the forced draft finds its way more readily through the refuse to support combustion. Further, when uncompressed refuse is burned, from 10 to 15 per cent more heat is developed.

During the last few years, serious efforts have been made in France to equip the collection service with apparatus which would be as sanitary as possible. These requirements are:

1. It should be possible to fill the various types of receptacles by the smallest amount of physical effort. (In towns where a uniform type of receptacle is prescribed, this requirement is met easily.)

2. The receptacles should be easily emptied into the body of the collection vehicle without spilling the refuse and without causing dust.

3. The body of the collection vehicle should be closed air-tight during hauling. The vehicles should be opened only when absolutely necessary for emptying the receptacles.

4. It should be possible to unload the vans into the bins without creating dust, or in the case of ordinary dumping, with little dust.

5. As small a portion of the loading and emptying as possible should be done by hand, and the physical strain to which the workers are subjected should be reduced to a minimum.

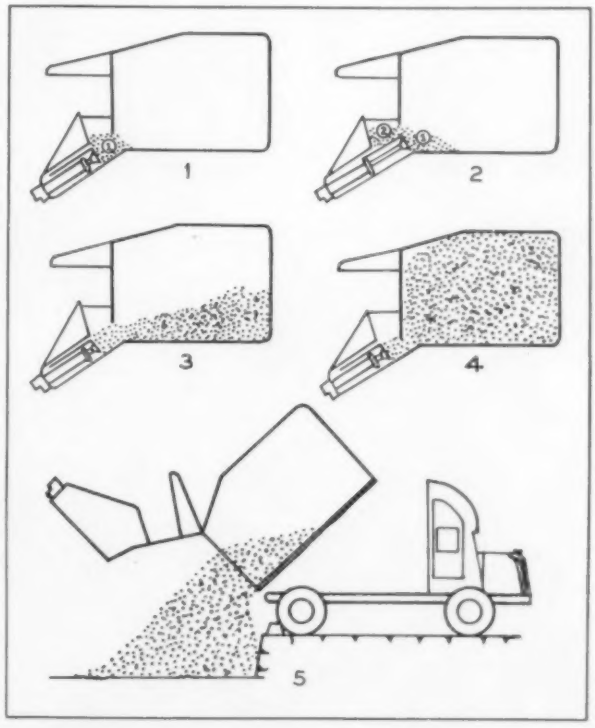
6. The staff and vehicles which are used for refuse collection in the morning should be used for other service in the afternoon.

The collection of refuse requires only from four to five hours daily. It is therefore desirable to employ the staff and the vehicles for the remaining three or four hours daily on other work. In order to make this possible, the vehicles should be so constructed that they may haul fine gravel, sand, stone, earth, logs of wood, coal, rubbish, etc. The saving would be considerable, for wear and tear and costs of upkeep would thus be distributed over a greater transport tonnage than if the vehicles were used solely for hauling refuse.

Collection Equipment in Paris

At present Paris is using a collection truck with a special body closed by a sliding door and dumped through an opening in the rear. In 1934 there were 705 trucks of 15.7 cubic yards capacity operated by private contractors in Paris, and 90 trucks of the same capacity owned by the city. All these trucks are gasoline-operated except two experimental trucks operated by electric batteries.

For several years Paris officials studied new trucks. The two main requirements of the refuse-collection officials were that the refuse while being dumped should be kept from the view of the householder and from being blown about by the wind, and that the vehicles should have some device for compressing the refuse in order to reduce its



DIAGRAMS SHOWING THE OPERATION OF THE REY-SITA COLLECTION BODY

1. The charging device with the plunger retracted. 2. The plunger extended to push the first load into the body, and also showing the second load of material ready. 3. The body partially filled. 4. The body completely filled. 5. Method of dumping

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volume. During the last few years there has been a considerable reduction in the specific gravity of household refuse in Paris, probably due to an increase in the amount of paper.

One of the trucks investigated was the "Kuka." The body of this truck consists of a sheet iron cylinder 6.6 feet in diameter running the full length of the chassis behind the cab. This cylinder turns on its axis, one end resting on a pivot pin and the other in a rotating cap. It contains four helical vanes which move the refuse to the front of the van as the cylinder turns. The body is emptied from the back at a height of 4.3 feet by reversing the rotation of the cylinder. This model has a capacity of 19.6 cubic yards.

Experiments have also been carried on with a "Rey-Sito" system collector of S. E. M. I. A., the largest private collector in Paris. The body of this equipment is of sheet iron with a loading funnel at the rear and a hydraulic piston for pushing the material into the body, as illustrated. To empty the body, the door is opened and the body tipped.

The authorities in Paris have been so satisfied with this that S.I.T.A., another of the large companies engaged in refuse collection, was ordered to transform 360 of its old vehicles by installing this body. This change has been completed.

Type of Trucks Used in Lyons

Two types of truck bodies are used in Lyons, one which can be loaded from both sides and has a capacity from 10.5 to 15.7 cubic yards, and the other which can be loaded from only the right side and is used chiefly along the docks. To discharge the refuse, the door at the back is opened and the body is tipped 45 degrees. This type of body has the following advantages:

1. It can be used for hauling other materials when collection is finished. People who are extremely particular may object that material carried in the refuse trucks may propagate disease. To these Mr. Chalumeau replies that "a jet of water is sufficient to cleanse the whole of the inside before it is sent out on its other errand."

2. These bodies allow the refuse to be emptied without scattering any dust. The incinerators at Lyons have bins with special doors consisting of flaps, the diameter of which is only a little greater than that of the body. The flaps are movable about a horizontal axis set in the upper part. The back of the body of the truck rests on runners, and when the truck is backed, the runners raise the flap and the contents can be shot in. The moment the flap is raised, a current of air rushes through the opening. Thus, the dust is drawn by suction into the bins and none of it blows about outside. This arrangement was designed by the city of Lyons and used for the first time there with excellent results. It has been used for three and one-half years, and maintenance costs have been low.

Collection in Other Communities

In some towns of France collection is effected by exchanging the receptacles. This system is expensive and not easy. It is used in Marseilles where the firm of Fernand Genève has built a special three-deck vehicle, the bottom of which is loaded with containers and then raised to the top; the next deck is then filled and raised. Loading of the van is thereby made much easier, since the collection men do not have to lift the receptacles more than 4.6 feet above ground level. By using this system, the town is of course responsible for cleaning, delivering and keeping the receptacles in good condition. The system is good as regards hygiene, but causes much work and trouble.

ACKNOWLEDGMENT.—From a paper, "Refuse Collecting in France," presented at the Second International Congress on Public Cleansing held at Frankfort, Germany, August, 1935.

The 1936 Flood of the Ohio River Topped the 1933 Rise, but the Portsmouth Flood Wall Again Kept the City Undamaged

A PUBLIC works construction project that was considered a folly in the early nineteen hundreds has repeatedly proved itself a good investment for the city of Portsmouth, Ohio. While scores of other cities and villages along the Ohio River suffered great property damage in the March flood, Portsmouth again came through undamaged.

As reported in THE AMERICAN CITY in August, 1933: "In 1909 Portsmouth took the first step toward permanent flood protection by building 5,100 feet of concrete flood wall. In 1912 another 3,800 feet was built, and finally, in 1930, 6,800 feet more was constructed. Today a total of 15,700 feet of wall, varying in height from 14 to 32 feet, stands as a rampart between the flood waters of the Ohio and the homes of Portsmouth."

This construction cost the city $700,000, but that amount has been saved many times over during each of the periodic floods of the Ohio and Scioto Rivers at whose confluence the city of Portsmouth is located.

Sewage Pumping

At flood stage with the river level above the city it is necessary to pump the sewage to a higher elevation as well as to drain any excess precipitation within the city. The sewage pumping unit, installed after a careful analysis of Government records of rainfall, consists of a 2-inch horizontal Wood trash pump driven by a 200-hp motor at 257-rpm, and two 14-inch vertical pumps driven by a 100-hp, slip ring motor, installed in the village of New Boston, which is within the city of Portsmouth. These pumps operate whenever the flood-gates are closed.

During the March, 1936, flood, when the water gradually rose until it was within 6 inches of the top of the wall, these pumps were operating continuously for two weeks, completely draining the city of sewage and of rainfall which collected in the sewerage system.

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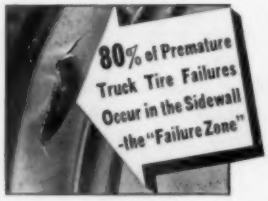

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Progress Toward Land-Value Taxation Throughout the World

By BOLTON HALL

THE Utopias are not mere dreams; they are visions of what might be if we knew the laws of nature and lived in accordance with them. If goods were produced freely and distributed widely, there would be plenty for all, and the fear of poverty would disappear: all misery and crime that is due to poverty would vanish eventually, and with them, most of our violence and war.

The first condition for free production is easy access to the resources of nature: fields, mines, water power, building sites, oil fields—all those sources from which raw material and goods are obtained and made. Henry George proposed a plan whereby all those sources of wealth can be opened to every one who can work. Various peoples of the world have been working toward the application of that plan. Let us see how far we have progressed in this direction.

Outside the United States, the principal countries and states in which a measure of land-value taxation is applied are: British Columbia, Saskatchewan, Alberta, Manitoba; Argentina and Brazil; Denmark; New Zealand; Queensland, New South Wales, Victoria, South Australia, West Australia; Spain; The Transvaal, Cape Province, Natal, Rhodesia and South Kenya, which is west of Abyssinia.

Nowhere has land-value taxation for public purposes yet absorbed the whole economic rent of land, which is the aim of George's plan. Some have begun, others have made fair progress, but the important thing is that the principle, whether to small or large extent, has been put in operation, and prolonged experience has been gained to provide a decisive answer to the question: Can it work? How does it work in practice so far as tried?

The principle involved is payment in proportion to the value of the land. The landholder has to contribute to the public revenue only what the land (alone) would rent for apart from buildings or other improvements that are in or on the land. The assessment of land value is separately made, and the tax imposed abolishes or reduces taxation that would otherwise fall upon buildings and other improvements, or upon wages, trade and industry.

The separate valuation of the land by the tax assessors, apart from improvements in or on the land, is the first step towards taking what the land would rent for in lieu of taxes. This is more general in the United States than in any other country. The separate valuation was always the practice of intelligent "real estate" appraisers, but it was popularized for tax assessment purposes by Lawson Purdy, as President of the Board of Taxes and Assessments in New York City, and then followed by many progressive communities.

In all the score of countries named, the assessment upon which the land-value taxation is imposed is the capital value—the amount for which land could be sold apart from the buildings or other improvements on that piece of land.

In all cases these taxes on land value have broken up or tended to break up the great estates held for speculation and have helped to open land for the use of the people. Of course, they stimulate building and real estate transactions.

United States

PENNSYLVANIA.—A special law passed in 1913 enabled Pittsburgh and Scranton to reduce the city taxes on buildings and correspondingly to increase the taxation of land value. This was done in Pittsburgh by reducing the rate by 10 per cent on buildings, for the years 1914 and 1915, and by 10 per cent each third year thereafter, until the rate on buildings became half that on land value. The result of the transfer was that the city received from the publicly created land values an annual contribution of some $12,000,000 which had previously been exacted by taxing buildings, the total tax-revenue of the city being some $75,000,000.

CALIFORNIA.—The method by which the irrigation systems in California are financed is most important. The irrigation law originally provided for the taxation of both land and improvements. But in 1909 the law limited assessments in all new irrigation districts to land values only, and permitted the five irrigation districts then existing to adopt the new system by a majority vote of the resident landholders. Today more than 1,500,000 acres of California land in the most fertile valleys and the richest section of the state are operated under this Henry George system. It is an extensive application of the principle of land-value taxation.

NORTH DAKOTA.—North Dakota in 1917 provided for the assessment of land at 30 per cent of its selling value, and improvements on farm land at 5 per cent of their value, which would result in these improvements paying only one-sixth of the tax paid by land of similar value.

MINNESOTA.—From 1881 to 1897 the valuable iron mines of Minnesota paid nothing in taxes for local or state purposes. But in 1897 these lands were subjected to taxation by unanimous vote in the House, with only four negative votes in the Senate, despite the efforts of a powerful lobby. Since then they have paid several millions for schools, roads, township, village, county and city improvements.

Dominion of Canada

ONTARIO.—In all the cities of Ontario the capital values of lands and of improvements show in separate columns of the assessment lists.

WESTERN CANADA.—In the four Canadian Provinces of British Columbia, Saskatchewan, Manitoba and Alberta, land-value taxation for local purposes is partly in force. Improvements are relieved by taxing them only at a percentage of the assessed value (or they are exempted altogether), while the land is taxed on its entire assessed value. This results in improvements being taxed at a lower rate than land; and where the improvements are entirely exempt, the tax falls on the value of the land alone.

In ALBERTA, improvements are not taxed in rural municipal districts. In the cities, towns and villages the situation differs, and while everywhere land is taxed on 100 per cent of appraised value, improvements in the majority of cases are taxed at two-thirds of their value. Milk River derives the whole of its

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local tax revenue by land-value taxation, buildings and other improvements being exempt.

In SASKATCHEWAN, in all cases land is assessed and taxed on 100 per cent of actual value. In rural municipalities and villages 60 per cent of the fair actual value of improvements is taxable, but in rural municipalities all buildings used for farming purposes are exempt.

In MANITOBA also, so far as rural areas are concerned, local taxation on real estate is based on the land value, exempting farm stock and improvements. In the cities, as in Winnipeg, the capital city, improvements are taxed at two-thirds of value, and in Winnipeg the cost of the new water supply, more than $15,000,000, was met by a special rate on the value of the land alone.

In BRITISH COLUMBIA as a whole, eight city and three district municipalities assess land values only.

The World Over

Without going into details, the following instances show the general trend of change in world-wide systems of taxation.*

DENMARK.—In this agricultural country all local authorities (towns, counties and rural parishes) raise a proportion of their revenue by land-value assessment.

QUEENSLAND.—Brisbane, the capital city of Queensland, Australia, levies all tax rates on land values. So does every other local authority throughout the state.

NEW SOUTH WALES.—The city of Sydney and its 40 metropolitan boroughs and the other municipalities and counties in the state levy taxes on the capital value of land alone, buildings and improvements being entirely exempt.

Part of the cost of the Sydney North Shore Bridge is met by a special land-value tax levied annually (at one cent on $5 levied up to 1933, and two-thirds of a cent on $5 levied up to 1939).

NEW ZEALAND.—Wellington, the capital city of New Zealand, taxes only land value, buildings and improvements being entirely exempt from local taxation. Eighty-five other boroughs, counties, and independent town districts also have carried this system into full operation for local purposes, and 66 more (out of the total of 265) levy the main part of their rates on land values. Wellington adopted a land-value tax for all purposes in 1927.

THE TRANSVAAL.—Johannesburg, the largest city, levies the whole of its local tax rates on land value alone. Pretoria, the capital, takes all but a small part of its revenues from land value. The real estate taxes in ten other towns include land values only. In the remaining 14 towns the greater proportion of the tax rates fall upon land values.

CAPE PROVINCE.—The 1913 ordinance established a Government Valuation Department, which now makes all the valuations throughout the Province. Two towns (East London and Cambridge) at once took advantage of these powers, Cambridge placing all its tax rates on land values, while East London gets practically all its rate-revenue the same way, with the rate on improvements only 1/24 of that levied on the value of the land.

NATAL.—The city of Durban levies its local taxation so that the rate on buildings and improvements is half of that on the land value of each property. This measure of land-value rating has been in operation since 1923.

KENYA.—An ordinance of 1921, applying to the town of Nairobi, provided for a complete system of rates imposed on the selling value of land apart from improvements, for the revision of valuation. Rates in any one year may not exceed 2 per cent. The rates in Nairobi have been levied since, year by year, on land value only.

NIGERIA.—S. Vere Pearson in "Growth and Distribution of Population," says: "There is an illuminating contrast between the conditions in the northern and southern portions of Nigeria, although both have the same money system, which is thoroughly orthodox. The difference between the two sections that causes the difference in the welfare of the people is that in the southern portion our familiar tax system prevails, and houses and their contents are taxed; while in the northern portion, the Government is supported from the rental of land and there seem to be no taxes on labor products. In the south there is unemployment and distress; in the north there is a high degree of prosperity that is shared by all classes."

NOTE BY THE AUTHOR.—The foregoing summary is based upon data in the information Bureau of the United Committee for the Taxation of Land Values, as compiled by A. W. Madsen, B. Sc., of London, England, except as to California, North Dakota, Minnesota, and Nigeria, supplied by Joseph Dana Miller, Editor of *Land and Freedom*, New York City.

* For convenience all currencies have been translated into dollars at $5 to the British pound.

London County Council Urges Land-Value Taxation

AT its meeting on July 14 the governing body of England's metropolis—the London County Council—adopted a resolution in favor of national legislation to empower local authorities to levy a rate on site values.

The Finance Committee's report on which this epoch-making resolution was based is an illuminating document. It describes how rates (local taxes) are at present levied and in how many respects such taxation is unjust and operates inequitably; how, by taxing buildings and improvements, the present system handicaps trade and penalizes industry; and how unfair is the burden which falls with the greatest severity upon those least able to bear it. The effect of the present system in exempting undeveloped and underdeveloped land, however valuable it may really be, from contribution to the rates is illustrated in the difficulties with which the London County Council, like other local authorities, has to contend in the acquisition of land for public purposes—a handicap not only to public authorities, but to builders and business in obtaining land for development.

In its report the Finance Committee has given some striking instances of the London County Council's own experience.

In the case of nine purchases of lands for parks the total price was £107,868. The same land had been assessed for rates at an annual value of £988, so that the purchase price was 109 times the rateable value (or more than five times the capital value).

In the case of eight purchases of land for cottage housing estates the total price was £932,908. The land had been previously assessed at an annual value of £7,391, making the purchase price 126 times the rateable value (or more than six times the capital value).

Even this does not show the whole of the abuse, since very much of that land, whatever its rateable value, was exempted as "agricultural" under the Agricultural Rates Acts, and since 1929 such land has paid nothing.

The report describes the bills that have been introduced in Parliament to remedy this state of affairs and the action that the Council has itself taken from time to time. It concludes with an emphatic declaration in favor of the rating of land values. Reference is made to the extent to which this principle has been adopted in New Zealand, Australia, Denmark and other countries. The final recommendation is:

(a) That the Council is of opinion that the present rating system is inequitable in its incidence, that site value is a subject peculiarly suited to local taxation by reason of its arising from community influences including local expenditure, and that it is accordingly desirable that the present burden of local expenditure should be transferred either wholly or in part from rates to a rate upon site value.

(b) That His Majesty's Government be informed of the opinion expressed in the foregoing resolution (a) and be urged to introduce legislation at an early date to empower local authorities to levy a rate on site value.

The report is signed by Mr. Charles Latham, the Chairman of the Finance Committee. Its adoption places the great influence of London in the forefront of the municipal agitation for the rating of land values, which in recent years has been supported by no fewer that 230 British local authorities.

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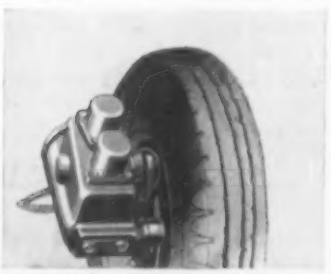

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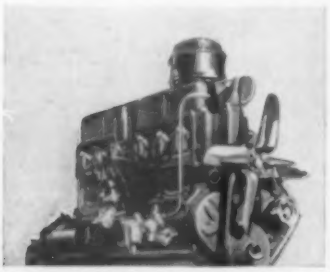

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Elevated Water Tanks Cut Costs

By CHARLES BROSSMAN
Consulting Engineer, Indianapolis, Ind.

THE widespread use of centrifugal pumps in connection with the pumping of water to municipal plants, not only where purchased power is used, but also to places that generate their own power, has a very marked bearing on the use of elevated tanks for water storage. When it is realized that on closed water systems, without elevated tanks, with centrifugal pumps in service, the pumps are generally installed large enough to take care of the peak loads, usually in the smaller places with one or more pumps of the same capacities, it is evident that with a pump available to take care of the peak and fluctuations in the load, on the lighter loads, especially at night, both the pump and the motor, being underloaded, drop off greatly in efficiency.

With the pump efficiency thus greatly reduced over a considerable period of time, the power consumption will be greatly increased. Further, if power is being purchased, with a maximum demand on the motor size, the rate will be increased owing to this factor, for the reason that the pump must be large enough to take care of the peak load, with a corresponding increase in size of motor; whereas, with an elevated tank, and pump operating uniformly, the pump size can be somewhat reduced, thereby reducing the demand factor.

Another disadvantage is that if pump service is interrupted, pressure is lost, immediately, which is always undesirable, especially if there is a fire. With an elevated tank, this would not occur. With a tank of reasonable capacity, an interruption to service could not jeopardize the fire-fighting facilities, or cause complaint from other sources. Furthermore, any pump on the line can be used at its maximum output, and with a correspondingly maximum efficiency.

Another factor is the question of uniform pressure. With an elevated tank, automatic regulating control is available, whereby the tank variation in head may be kept within a few feet, giving uniform pressures at all times.

Assuming the case of a closed system, without the tank, with a demand in outlying districts, the pipe friction load is built up and results in considerably lower pressure to such sections of the city. However, with an elevated tank, properly located, the friction loss is not usually so great and the water is always available in the tank.

The Case of Albion, Ind.

The town of Albion, Ind., has a water consumption of approximately 50,000 gallons per day for a population of 1,100. An elevated tank was installed with PWA funds, the total cost of the tank being approximately $7,200. The power used before installing this tank, on the closed system, was approximately 1 kwh for 530 gallons; after the tank was installed, pumping was approximately 1 kwh for 1,050 gallons, thus cutting power consumption in half.

In this particular case, a grant under PWA was given the town, and the town's portion of 70 per cent, amounting to $5,040, will be paid off, with 4 per cent interest, in from fifteen to sixteen years by the saving in power alone, at the present rate of consumption. These figures do not allow for depreciation, but simply take into account interest, principal and power saved.

Albion has its own generating plant, and the total cost of power is 3 cents per kwh, including all costs. A careful check on all costs and power used on equipment is being kept by Ed. Maloney, Superintendent of the plant, and the records show this investment is well justified.

The electric pump used in this system is only 200 gpm, and in case of fire a steam pump was operated and steam was kept up at all times, before installing the tank. Now, with the elevated tank installed, it is not necessary to keep up steam on these pumps, although steam is always available from the main light plant. However, the fact that the steam may be kept off the pumps and the lines leading to the pumps, results in a saving in fuel, which has not been taken into account in the computations given.

Also Goshen, Ind.

The city of Goshen, Ind., recently installed a 500,000-gallon tank. The old plant was steam-driven. About six years ago, the city installed a modern diesel lighting plant, but only two of the deep-well pumps were electrified at that time. The boilers had to be kept going at all times in the old steam plant, in order to have available suitable fire protection. In this case, also, a PWA loan was negotiated and the entire water-works system was electrified. The city now has eight electric-driven deep-well pumps, and a new half-million-gallon tank. The loan was negotiated on the basis of the savings that would be made by abandoning the steam plant.

The cost of pumping for the old system by steam was approximately 8.3 cents per thousand gallons. This is high, but the equipment was old, using air-lift pumps and double pumping, except for the two electric-driven pumps.

It is estimated that actual electrical pumping cost would be about 1.2 cents per thousand gallons, and the total cost 2.2 cents per thousand gallons, and, of course, to take advantage of this, a new elevated tank had to be installed.

The old standpipe was not adequate for the demands, as the upper portion did not store very much water. The new elevated tank, of one-half million gallons, was installed on the opposite side of the city from the plant.

The entire pumping equipment is automatically controlled, there being two pumps at the tank site, which is about one and one-half miles away from the main station, and six automatically controlled deep-well pumps at the main station, each pump having a capacity of 500 gpm.

ACKNOWLEDGMENT.—A portion of a paper presented before the Indiana Section, American Water Works Association.

CONTROL means BALANCE

(*Circle*) Water power — out of control — is a destructive force; under control a blessing. (*Photo*) Control makes a difference in tractors, too. Note the BALANCE of this Model "K-O" as indicated by lack of slippage on the California All-American Canal job.

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Controlled Ignition OIL TRACTORS

Municipal Control of Weights and Measures

By FRANKLIN W. RYAN
Research Associate, Harvard Bureau for Research in Municipal Government

THE range and extent of a municipal government's powers to control any one of the activities of retail trade depends on how much power has been delegated to the municipality by the state, and in some cases on how much of this delegated power the city government wishes to use. This point is illustrated particularly with respect to police powers to control weights and measures, in the accompanying tabulation.

There are at least sixteen different ways in which these powers have been delegated (or not delegated) to cities. Roughly, they fall into three classes: (1) the state reserves all powers; (2) the state reserves some powers and delegates others; (3) the state delegates practically all powers to cities (with some exceptions).

No state or county or city has any power to fix standards of weights and measures, for this power was given by the states to Congress in Article I, Section 8, of the Federal Constitution.

One of the basic principles of municipal government, often reiterated, is that wherever police power is delegated to the municipality, such delegated power is mandatory. Yet the tabulation shows very clearly that in the field of weights and measures some states have delegated this power as discretionary. Nevertheless, since all governmental powers not delegated to the Federal Government in the Constitution still belong to the state to be used or not used, or to be delegated or not delegated as desired by the state, a state can delegate police powers to municipalities either as mandatory or as discretionary powers.

Relation of State Governments to Municipal Control of Weights and Measures in the United States

1. The state reserves all powers to regulate weights and measures.—*Minnesota, Vermont, Wyoming.*

2. The state has a more or less efficient inspectional system for measuring and weighing devices, covering its entire area, and places no reliance on cities or on city inspectors and sealers. Cities are not expected to have sealers. But if, as in some cases, a city employs its own sealers, state officials cover the state without regard to the work of local officials.—*California* (c), *Iowa, South Carolina.*

3. Municipal sealers are nominally required in the cities of over 25,000 population. But the requirement is not fully enforced. Several important cities in these states do not have sealers.—*Illinois, Rhode Island.*

4. Municipal sealers are required in cities. They work directly under the supervision of state authorities. (In Maine and New York, all cities are required to have their own sealers; in New Hampshire and Massachusetts all cities; in West Virginia, cities over 25,000.)—*Maine, Massachusetts, New Hampshire, New York* (c), *West Virginia* (co).

5. Municipal sealers are required in the larger cities. They work in cooperation with state authorities, and ordinarily have joint jurisdiction with them. In Indiana, Pennsylvania and New Jersey, there are county sealers who work in cooperation with state and municipal sealers.—*Indiana* (c), *New Jersey* (c), *Pennsylvania* (c), *Utah.*

6. Municipal sealers are required in the larger cities. State officials do not operate in these cities except for annual or biennial check on work of city officials.—*Arizona, Connecticut* (c), *Washington, Wisconsin.*

7. Cities may or may not appoint sealers as part of state system of inspection. If appointed, there is a cooperative relationship between them and the state officials. If cities do not appoint sealers, state officials take care of local inspectional problems. There are also county sealers who work with state and city sealers.—*Kansas* (c), *Ohio* (c).

8. Cities have the option of appointing or not appointing their own sealers. If appointed, they are subject to an annual or biennial check by the state. If not appointed, state officials take care of local inspections.—*Nebraska, North Dakota.*

9. Cities have the option of appointing sealers or not. If appointed, they work directly under the supervision of the state. State nominally takes care of its entire area whether cities appoint sealers or not.—*Idaho, Michigan* (co).

10. Cities have the option of appointing sealers as a part of general state system; if appointed, they are under the general supervision by the state. In Oklahoma there are county weighers.—*North Carolina* (co), *Oklahoma, South Dakota, Tennessee* (co).

11. Cities have the option of appointing sealers or not, but the state does not operate in such cities except in special or exceptional cases or on request.—*Alabama* (co), *Oregon* (c), *Texas, Virginia* (co).

12. State has a vaguely organized or nominal system of inspection of weights and measures, and cities have the option of appointing sealers, but the state exercises practically no supervision over such city-appointed sealers. In these states there are county sealers in each county.—*Missouri* (c), *Montana* (c).

13. State inspection of weights and measures is entirely by a county system. (Wilmington, Del., is allowed to have its own city sealer, but he works under county control.)—*Delaware* (c), *New Mexico* (c).

14. The state has no regular administrative code for the inspection of weights and measures, but allows its cities the option of having sealers or not. Where cities do have their own sealers, the state pays practically no attention to them and exercises no supervision over them, and does very little to help enforce municipal regulations. In Louisiana, the governor appoints two sealers for the city of New Orleans only.—*Arkansas, Colorado, Florida, Kentucky, Louisiana, Mississippi, Maryland.*

15. The state has a system about like the class above, but if there is short-weighing or short-measuring, it may be prosecuted and punished under anti-cheating and anti-swindling laws of the state.—*Georgia.*

16. The state has a commission of weights and measures with discretionary powers.—*Nevada.*

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* The data in this article are taken from the manuscript of a forthcoming book on "Municipal Control of Retail Trade in the United States." A brief 50-page summary of this book was issued in December, 1935, by the National Municipal League, 309 East 34th Street, New York. Price, 75 cents. In this summary it is shown that of the 120 elemental activities of retail trade, only about 25 can be controlled by municipalities.

It should be understood that, since every state in the United States relies on gasoline taxes for a large part of its state revenue, all the states, of necessity, have fairly strict supervision of measuring and weighing devices used in the sale of gasoline. Outside of this regulatory feature, however, there are wide variations between the states, as here shown.

c. This symbol indicates states where counties are required to have sealers.

co. This symbol indicates states where it is optional for counties to have sealers.

This tabulation is compiled from information most of which is as of 1933.

Minnehaha Avenue, Minneapolis, Minnesota. Tarvia-built in 1920, and as attractive, easy-riding and skid-safe today as it was sixteen years ago.

1920

1936

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Centralized Accounting at Cleveland Heights, Ohio

By H. M. KIMPEL
Director of Finance

THE city of Cleveland Heights is the twelfth largest city in the state of Ohio, population 55,000. Its area of 8.2 square miles is divided into some 16,000 parcels of land on which are constructed 12,000 homes, apartments and stores. A rigid zoning ordinance is enforced, designed primarily to maintain the standards of an ideal residential community. While some small retail business districts are designated, the city has no factories and no railroads. All streets are fully improved.

The City Council of seven members, elected for four-year terms, is the governing legislative body. Each of the present Council members has served the city in this capacity an average of over 16 years. The Mayor, Frank C. Cain, is President of the Council and has served the city for 26 years. The City Manager, H. H. Canfield, who is appointed by the Council, has been in the service for 26 years, the Law Director 16 years, the Fire Chief 26 years, the Police Chief 16 years, the former Finance Director 15.

Unrelated technically to accounting, nevertheless it has been this very continuity of city government that has contributed most importantly to the entirely satisfactory condition of our municipal finances, despite the now familiar problems of decreased revenues.

Like all other cities, we have had our share of difficulties during the past few years. For example, constant pressure has been brought to reduce the valuation of properties in Ohio. Cleveland Heights real estate in 1928 had a tax duplicate valuation of $171,380,520. In 1935 it was $103,-021,860, representing a reduction in valuation of 40 per cent.

Tax collections also have been disappointing, reaching a low of 81 per cent for general taxes and 56 per cent for special assessment collections in 1932. A reserve of $1,500,000 in the Sinking-Fund and Bond-Retirement Fund in 1927 in excess of debt requirements has been depleted through tax delinquencies but now represents an asset due the city in the form of delinquent taxes. The decision of the City Council in 1927 and thereafter to levy for maturing debt regardless of this reserve illustrates well the value of continuous service in government.

A change in the personal property tax law—now called Classified Property Taxes—reduced this source of revenue from about $200,000 in 1927 to $1,500 in 1934. Moreover, voters amended the Ohio constitution, effective January 1, 1934, lowering the maximum tax rate of 15 mills per $1 of valuation to 10 mills, thereby reducing the revenue of many Ohio taxing districts to millage insufficient to pay annual debts. Further legislation guaranteed the school districts a minimum share of the 10 mills.

On top of this, welfare and unemployment relief expenditures have represented 8 per cent of the General Fund expenditures during the last three years.

Centralized Accounting Control

Until January 1, 1933, the financial records of Cleveland Heights were kept in the prescribed state form, on a cash basis and accomplished by the single-entry hand method of bookkeeping. Except when the books were closed each month, the cash balance in each fund was not easily determined. The accounts payable by funds were not a recorded fact, nor were the unencumbered appropriation balances known except at monthly closing periods, for which the monthly reports were usually two weeks late when completed.

Realizing that Cleveland Heights, like a majority of municipalities, needed improvements from an accounting control standpoint, we installed a complete double-entry accounting system on January 1, 1933. All accounting

Courtesy of National Cash Register Co., Dayton, Ohio

FROM HANDWRITING TO MACHINE

Financial records of Cleveland Heights were formerly hand-kept by single entry, but now the machine furnishes daily balances and receipts in each of ten funds

Capacity...Economy...Style IN GMC MEDIUM AND HEAVY DUTY TRUCKS

A GMC is just the truck for business men with big, bulky loads that call for a vehicle of ample size and with the stamina and economy to assure greater savings or earnings.

Take the GMC 3-ton, at only $895 chassis f.o.b. Pontiac. On the score of performance you can safely place your faith in such features as GMC valve-in-head engine, truck-built clutch, heavy-duty transmission, roller-bearing steering, set-back front axle and massive full-floating rear axle.

Economy features include down-draft carburetor, oil bath air cleaner, complete full-pressure lubrication, exhaust valve seat inserts, oil filter, removable main bearings and many other quality refinements.

And so eye-arresting is the advanced streamlined styling of this big, rugged GMC that owners can place a real dollars-and-cents value on such fine appearance. All in all, this modern GMC in the 3-ton range as well as every other type in the medium and heavier-duty ranges is truly an exceptional value—one that is a challenge to the field, especially when price is considered.

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control was centralized in the hands of the Director of Finance. The records were divided into significant funds, these divisions coinciding with the recommendations of the National Committee on Municipal Accounting. Our funds were grouped under the following headings:

General Fund
Water (Utility) Fund
General Bond Improvement Fund
Special Assessment Sinking-Fund
Restricted Fund (grouped special purpose funds)
General Sinking-Fund
Special Assessment Sinking-Fund
Firemen's Pension Fund
Police Relief Fund
Tax Refund (Agency Fund)

An operating balance sheet of each bond furnished the opening entries of our double-entry system. A separate bank account was opened for each fund.

One Operation for Two Entries

Our netire accounting system may be visualized from the following general description of equipment and records:

One ledger—partitioned into ten sections representing the ten funds
One cash receipts journal
One cash disbursement journal
One certification journal
One series of pay-in orders—posted numerically in cash receipts journal
One series of purchase orders—posted numerically in certification journal
One series of vouchers—posted numerically in certification journal
One series of checks—posted numerically in cash disbursement journal
One bookkeeping machine

Every entry is made on the bookkeeping machine. By using a sheet of carbon paper, one operation makes two entries in the records—one entry on a ledger sheet and the other entry in the journal, except in the case of cash disbursements, where one entry is on the check and the duplicate entry in the journal.

The left-hand half of the cash receipts journal, the cash disbursements journal and the certification journal (which is really a voucher register) are exactly similar in form to the ledger sheet. The right-hand half of these three journals contains columns of individual funds. When a ledger sheet is placed over the left-hand half of any of these three journals with a carbon between, it is possible to make the journal entry and the ledger posting at the same operation.

Cash receipts are posted by inserting in the machine the cash receipts journal sheet, partly covered by carbon paper, making the original posting on the proper revenue ledger account, and imprinting through the carbon a numerical listing of all entries on the cash journal sheet.

Similarly, the purchase orders are posted by the insertion of the certification journal sheet, partly covered by carbon, making the original posting on the proper appropriation account, and making a numerical listing of all purchase orders in the certification journal.

The vouchers are posted by inserting the certification journal sheet, partly covered by carbon, making the debit for the amount of the invoice and crediting the purchase order amount on the appropriation account. This operation of course corrects the appropriation account balances to date and leaves a numerical record of all vouchers on the certification journal.

The disbursements are posted by inserting a cash disbursement journal sheet, partly covered by carbon and at the same time each check is written as to date, payee, number, and amount, the carbon impressions on the journal make a complete numerical listing of all disbursements.

Daily Fund Balances

On the right-hand side of these journal sheets, beyond the carbon copy section, are control columns for each fund. The daily totals of each of these journal columns represent the control entries to the proper control account in each fund. Using for illustration only the general fund control totals, these totals are then posted daily as follows:

For Cash Receipts	Debit—General Fund Bank Account Credit—General Fund Receipts Control
For Purchase Orders	Debit—General Fund Appropriation Control Credit—General Fund Accounts Payable
For Vouchers	Debit or Credit—General Fund Appropriation Control Credit or Debit—General Fund Accounts Payable
For Disbursement	Debit—General Fund Accounts Payable Credit—General Fund Bank Account

This system automatically requires immediate posting of all entries and furnishes a constant control over all funds. This in turn furnishes daily the cash balances in each fund, the total accounts payable in each fund, the detail and total appropriation balances in each fund, and the detail and total cash receipts in each fund.

Although this machine method entails entries in three different journals of uniform size, the journal forms have been so designed that no changes are necessary in any stops or tabulating devices on the machine. One type of ledger sheet serves for all accounts in the ledger, whether they be assets, liabilities, revenue or appropriation accounts.

Statements and Reports

At the end of each month operating statements are prepared on the machine, for all funds. These statements show in detail an analysis of all receipts as to character and source, the amounts this year to date, a month ago, and the current month's receipts. The monthly statement also shows every appropriation account, the annual appropriation, the unencumbered balances, the expense to date, and the current month's expense. Also included are a recapitulation or trial balance of the control accounts in each fund, and a comparison of the total expenses to date with the allowed budget expense for the same period.

Next to the duty of putting the municipal accounting records in good order, the chief duty of the finance officer is to see that annual reports of the city's financial position are placed in the hands of those who directly or otherwise determine the city's credit standing. Whether there is an advantageous market for the city's bonds depends in large measure on how clear and comprehensive a presentation of the city's finances is given the investing public by the finance director.

By making available to the city's officials a constant and accurate picture of municipal finances, administration plans and policies may proceed with proper confidence along orderly and businesslike lines. With adequate funds on hand, all essential operating services are maintained at satisfactory levels of efficiency.

Thus the Accounting Department furnishes valuable aid to the administration in upholding the standards of the various municipal departments.

The city of Cleveland Heights is convinced that this very important connection between the accounting division and all other operations is best established by a centralized accounting control, which, as we have seen, contemplates the use of a bookkeeping machine and double-entry accounting on an accrual basis.

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In Dallas and in all sections of the country—fairs, centennials, homecomings and other celebrations place unusual demands on police organizations. . . That's where Harley-Davidson Motorcycles prove their great worth. The great 1936 "74 Twin" and "80 Twin" police models have EVERYTHING—when it comes to handling unusual traffic conditions. They provide speed, fast getaway, ease of handling and parking, maximum rider comfort. And when radio equipped, they meet every demand for central control and rapid assembly. . . Not only do Harley-Davidson motorcycles enable officers to maintain safer traffic, prevent recklessness and disregard of traffic laws — but they have what it takes to put the police at a decided advantage in rounding up vicious law-breakers.

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Above—Sergt. Wicker and Texas Centennial Rangerettes admire one of the 1936 Harley-Davidsons.

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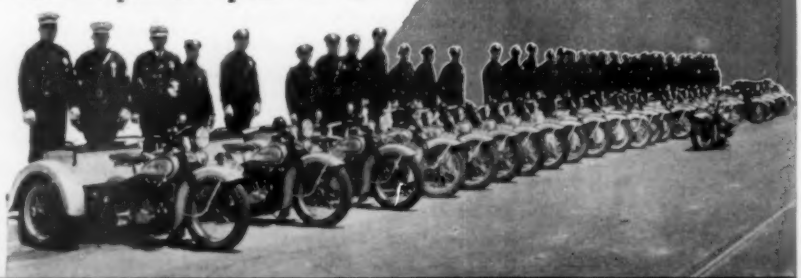

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May He Never Rise Again!

ALBANY, N. Y.—Old Man Carelessness paid the supreme penalty for his life of misdeeds, when he was dealt with as he deserved in the Safety Pageant given in Bleecker Stadium at Albany on May 23. In this presentation many saw their own recklessness personified and realized the terrible results of taking chances in flagrant disregard of human life.

This villain was portrayed as gleeful in his activities as soon as the age of the gasoline vehicle arrived and gave him opportunity to urge on the speeder to destruction. But the school children cornered him and dragged him from the field toward his execution; while even then he watched his chance to kindle a fire in a home and enjoyed the shooting of the flames skyward, until fire apparatus, led by Fire Chief Michael J. Fleming, roared to the scene and Carelessness found himself cheated of his intended victims. He was haled before Mayor John Boyd Thacher 2nd, and was accused by John B. Kennedy, radio commentator, of having brutally murdered thousands of men, women and children. Condemned to death, he was hauled away by his guards. A hearse drove slowly into view, and the body of Carelessness was laid in a rough black box which was placed in the hearse and escorted by smiling pallbearers with shovels on their backs to the grave which had been prepared. Ten thousands

BURYING OLD MAN CARELESSNESS, IN ALBANY

cheered while the body was lowered into what it is hoped will be the final resting place of Carelessness in Albany. Courtesy, Caution and Carefulness were proclaimed by the Mayor the guardians of the people in the future.

One of the most dramatic scenes in the entire program was the grim parade of 23 boys clear around the stadium track, their faces covered with black hoods. They represented the dead in last year's accidents. Behind them walked 947 in red hoods, representing the ones who suffered injury in Albany accidents during 1935. The great arena was silent before this ghastly toll.

The Pageant was broadcast to all parts of the civilized world. Governor Lehman, speaking of safety, declared that his study of automobile accidents shows that the blame rests on excessive speed, defective mechanical equipment, and disregard for rules, regulations and laws. Virtually every prominent state and city official was present at the pageant. Among those who engineered this pioneering event were Ernest Murphy, President of the Albany Safety Council, W. E. Vogler, Industrial Relations Director of the Socony-Vacuum Corporation for New York State, and the writer.

JOHN E. LONG,
Safety Director for the Delaware and Hudson Railroad.

Courtesy Albany Knickerbocker Press

ALBANY FIRE APPARATUS THWARTS OLD MAN CARELESSNESS IN HIS ATTEMPT TO BURN A HOME

A scene in the Safety Pageant

Municipal Service Costs Compared with Tax Payments by Census Tracts

BOSTON, MASS.—In its new "Income and Cost Survey for the City of Boston," the City Planning Board has attempted to allocate to the 127 census tracts into which the city is divided the cost of the service rendered by the various municipal departments as compared with the income as represented by assessed real estate tax, personal property tax, poll tax, motor-vehicle excise tax, and licenses.

The comprehensive character of this report was made possible through the aid of Federal relief funds appropriated by the Emergency Relief Administration.

Three methods have been adopted for distributing the costs of the various city departments, including service rendered, assessed value, and population. On this basis the report indicates that about 8 per cent of the gross area of the city pays the deficit incurred by the other 92 per cent. In other words, the business area downtown and about 10 per cent of the residential areas make up the loss from the industrial areas and the suburban, three-decker and low-rental residential areas. A further table shows that about 88½ per cent of the population using about 90 per cent of the gross area fail to pay taxes enough to cover the services rendered them. Allowance must be made in this connection, however, for tracts that are primarily business or industrial, since the census shows population in the residence properties only. Figures on the fixed daytime population —that is, the employer-employee group regularly located in the downtown district —were available, but no statistics were known to determine the transient population of shoppers, traveling salesmen and travelers in business, industrial and transportation properties.

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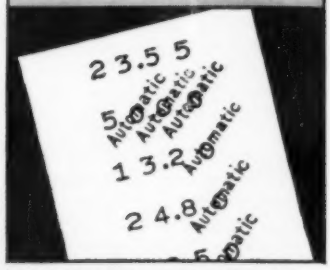

Only on the short-cut keyboard are ciphers written automatically. Thus much of the work is done without touching a key.

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Only on the short-cut keyboard can two or more keys be depressed at one time. This saves many needless motions.

COMPLETE OPERATION IN ONE MOTION

Only on the short-cut keyboard can an entire amount *and the motor bar* be depressed together, thus completing the entire operation in one motion.

Speed . . . with fewer motions

Burroughs short-cut keyboard permits the operator to add or subtract an entire amount, or take a total, with a single motion of the hand. Also, there are no ciphers to write—ciphers print automatically. These and many other time and labor saving advantages of the short-cut keyboard are described and illustrated in a new, interesting booklet. For your copy, telephone the local Burroughs office or write direct.

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ADDING, ACCOUNTING, BILLING AND CALCULATING MACHINES
CASH REGISTERS • TYPEWRITERS • POSTURE CHAIRS • SUPPLIES

The report shows, in striking fashion, the extent that taxes received from business and industrial districts and a few high-value residential districts are used to supply necessary municipal services throughout by far the greater portion of the city's residential areas. The more congested the population, the greater the cost of municipal service in excess of tax income, this excess being more than $25,000 per acre in certain districts of the north and west ends of the city proper. As the report states, this survey "should throw light on the assessment of taxes and the distribution of tax-exempt property, on the justification of rehabilitation in certain congested areas and on the necessity of preventing further decay in certain highly taxed areas, whether residential or business." The Income and Cost Survey is believed to be the pioneer effort of its kind in municipal financial analysis. No other city apparently, and certainly no city the size of Boston, has made this type of detailed, comprehensive analysis of its income and outgo.

WILLIAM STANLEY PARKER,
Vice-Chairman, City Planning Board, and Chairman of its Advisory Committee on Housing.

Rights of Landowner Do Not Extend to the Sky

AN Associated Press dispatch appearing in the *Chicago Tribune* and dated July 20 at San Francisco calls attention to the reversal of the popularly accepted doctrine that a landowner owns to the sky. It is stated that the United States Circuit Court of Appeals held on that date that an airplane is not a trespasser when it soars through the air over an individual's property.

The ruling was given in affirming judgment of the Los Angeles District Court, which found for the defendants. Justice Bert E. Haney, who wrote the opinion, said that the old law that a man owns to the sky never was taken literally, and that the doctrine probably came from "some remote time in the past when use of space above the land was confined to narrow limits." "The sky has no definite location," stated the opinion, "and the air like the sea, by nature is incapable of private ownership."

Cooperation in a Thorough Clean-Up

NEW BRUNSWICK, N. J.—In keeping with the policy adopted by many municipalities throughout the country for a "Clean-Up, Paint-Up and Plant-Up" campaign from May 4 to May 9, inclusive, the citizens of New Brunswick, responding to a proclamation issued by Mayor Frederick F. Richardson, set to with a vim in order that the city might be a clean, healthy, safe and beautiful

The employees of the Street Department over which Mayor Richardson, as Director of Public Works, presides, and under the direct supervision of J. Vincent Dunn, solicited the cooperation of the housewives in making the improvement a general one. Representatives of the Department left cards to be displayed in the homes setting forth the time for collection of garbage and ashes, and with eight points of instruction about the placement of rubbish and ashes, and the separation and tieing-up of bundles.

"Clean-Up Week" was ushered in with a monster parade headed by the Mayor and Board of City Commissioners, on Monday, May 4, and for the next six days the city was gone over as never before in order that it might be made more attractive. The Chamber of Commerce cooperated with the city officials in making the public "Clean-Up conscious."

Landlords here and there were interviewed and requested to make needed repairs to leaky roofs, bad plumbing, broken walls and ceilings. Cellars were cleaned out and whitewashed, obstructions were removed from hallways; vacant lots, both public and privately owned, were cleared of rubbish and brush, and with the close of the campaign the entire city took on a new appearance.

A four-minute motion picture under the direction of Mrs. K. McElheaney, of the Street Department, depicting the activity of that department, was exhibited in the city's two leading theaters during Clean-Up Week.

Prizes were offered to pupils of the public, parochial and vocational schools in a contest for the best essay on a "City Beautiful." Clergy of all denominations announced at the Sunday services the objective of the campaign, adding that it was instituted to make the city a healthier and safer place.

Evidence of the activity throughout the week may be gleaned from the following figures of ashes and garbage collections during the campaign. Ninety city trucks hauled 339,020 pounds of rubbish, while private individuals employed 107 trucks in carting 103,970 pounds, a total of 442,990 pounds, a little over 221 tons. Comparing the poundage collected this year with that of the year 1935 discloses that 101,450 pounds in excess were hauled away during the present campaign. The records also show that the city employed nineteen more trucks in the campaign this year than were utilized a year ago, and private individuals attested their cooperative spirit by engaging twenty-seven more trucks during the same period. Our city also hauled some 243 tons of ashes to the city dump from May 4 to May 9.

J. V. DUNN,
Supervisor.

A One-Piece, Above-Ground Pool

GRUNDY CENTER, IOWA.—The above-ground swimming pool which was built in Grundy Center last year is in full service again. The good use that was made of it last summer indicated that it would be well patronized during the 1936 season.

The population of Grundy Center is 1,793, therefore this pool, 60 x 90 feet, with over-all dimensions of 77 x 120, will amply meet the requirements of attendance, estimated (as based on good practice) to be at most at any one time 380 bathers, with the largest daily attendance

THE GRUNDY CENTER ABOVE-GROUND SWIMMING POOL

1,140. The pool is 3 to 9 feet deep and holds 152,985 gallons. All of it is swimmable (3 feet deep or deeper), and more than three-quarters of it is wadable (5 feet deep or shallower). The estimate is: one bather per 10 square feet of wadable water, and one per 27 square feet of deep water.

The construction is of reinforced concrete, brick and tile for pool and bath house. The pool itself is of heavily reinforced concrete. The bath room is of concrete on three sides, and of glazed tile and steel window sash on the fourth side. All the floors are of heavily reinforced concrete. The floors on the ground are subdrained with drain tile and gravel or cinders. The footings are 3 feet deep and below frost. The pool wall, pool floor and concourse floor are waterproofed. There is a two-line modernistic reinforced concrete railing around the pool. No wood is used in the pool or the bath house, except for doors and frames. A carborundum finish is used on all exposed edges and faces of concrete.

The purification equipment provides for a 12-hour turnover—12,800 gallons per hour; with filtering medium, Everson chlorinator, strainer system, Everson hair-catcher, etc. The pool is lighted by two 1,000-watt floodlights and twenty-three 60-100-watt ceiling lights. The plumbing equipment is adequate for both men and women patrons, and convenient dressing stalls are provided.

This swimming pool is of the Bintz design, developed by Wesley Bintz, of Lansing, Mich. The total cost of construction and equipment was $9,973. The low cost in comparison with that of the usual two-unit sunken pool was made possible because there was no excavation; no land was required for a separate bath house; and less drainage was needed, since the pool is up out of the ground water and frost. The undertaking was financed by means of a $10,000 bond issue.

The people of Grundy Center have responded to the idea of this form of public recreation, and the 1936 season opened auspiciously. The admission charges are: season tickets—adults, $3.50, children 12 to 15 years, $2.50, 10 years and under, $1.00; single admission—adults, 20 cents, children, 10 cents. The personnel required to operate the pool consists of three life-guards, one caretaker and a matron. The cost of operation is about $100 a week, including salaries.

GLENN H. SANDERS,
Alderman.

NOW New Savings in Control Cable with THINWOL

A NEW G-E Thin-wall Insulation for Multiconductor Control Cables

For voltages up to 220 a-c or 450 d-c

for

SUPERVISORY-CONTROL
FIRE-ALARM
POLICE-SIGNAL
TELEPHONE
AND OTHER CONTROL
CIRCUITS

OF interest to every engineer who is charged with the responsibility for maintaining important control circuits is a new development by General Electric research—Thinwol.

This is an insulation with such unusually excellent properties that its use on multiconductor cable results in savings in duct space as well as in maintenance.

Study these properties, shown as test data in the box, and check them with those of other insulations offered for this service.

You can see how high dielectric and tensile strength means a smaller-diameter cable, and thus savings in duct space.

Smaller-diameter cable requires thinner lead, and thus it costs less. Often the lead can be omitted, because of the low moisture absorption of the insulation; this, too, means a saving.

Long-aging qualities, as proved by the oxygen-bomb tests, make for a longer-life cable.

When next you need multiconductor cable for circuits of voltage up to 220 a-c or 450 d-c, you will want to investigate Thinwol. Call in a G-E cable specialist, whom you can reach through the nearest G-E sales office.

***TEST DATA ON THINWOL**

DIELECTRIC STRENGTH
In Volts per Mil

Dry Samples	833
Wet Samples (7 days soak at 70 C)	243

WATER ABSORPTION
In Grams per Sq In.
0.012

TENSILE STRENGTH
In Lb per Sq In.

Original	2005
After 96 hr in oxygen bomb at 75 C	1712

**Actual results from normal factory-run samples—NOT guarantees.*

G-E Parkway Cable

You can get G-E parkway cable with rubber or varnished-cambric insulation and with either non-metallic or metallic armor. Specify it for all general use without ducts for street lighting, traffic-control, and other lighting and power circuits.

For detailed information, see Bulletin GEA-1774. Address nearest G-E sales office, or General Electric, Dept. 6A-201, Schenectady, N. Y.

520-75

GENERAL ELECTRIC

When you write for that catalog, kindly mention THE AMERICAN CITY

An Interstate Competition for Better Town Reports

JAMES P. TAYLOR, Secretary of the Vermont State Chamber of Commerce, is continuing his good work for the modernizing of municipal reports. At the recent annual meeting of the Vermont State Chamber of Commerce a resolution was adopted "that the Committee on Local Finances and Affairs be instructed to propose to the Town Report Competition Committee of the Maine Municipal Officers and Assessors Association that an Interstate Town Report Competition between the towns of Maine and the towns of Vermont be arranged for the year 1937 and that the Governor of Rhode Island and the members of the Rhode Island Tax Commission be invited to serve as the judges in this Interstate Town Report Competition between Maine and Vermont."

The ten points of award suggested for the 1937 town report competition are:

1. Novelty and attractiveness of the cover
2. General appearance and orderly arrangement
3. Setting-up of a budget
4. Presentation of balance sheet and financial status
5. A striking summary of the most notable achievements of the past year
6. Quality and substance in reports of the departments
7. Historical and statistical data about town or city
8. Schedule of distribution of expenditures over a series of years
9. Graphic display of financial and other facts through the use of bar charts, graphs, maps, etc. — indebtedness, delinquent taxes, relief, etc.
10. A planning page devoted to a report of a local planning board, or to the suggestions of an official or unofficial group concerned with the study of the needs and possibilities and future of the town

Barricades Eliminate Accidents at Intersections

THE South Carolina State Highway Department has practically eliminated accidents at one of its worst intersections by the use of black and white barricades supplementing the standard markers, reports Wilbur S. Smith, Traffic Engineer, South Carolina Highway Department.

The barricades are erected so that they give the appearance of closing-in on traffic as the intersection is approached. On each of the four prongs of the intersection the two most extreme barricades are erected 14 feet from the edge of the pavement. The distance of each succeeding barricade from the edge of the pavement is reduced 2 feet, so that for the eighth, and last, barricade the distance is only 2 feet. To increase this effect, the distance between barricades was reduced as the intersection was neared: the distance between the extreme barricade and the next is 200 feet and the distance is reduced 25 feet between each succeeding pair of barricades, so that there is only 50 feet between the barricades nearest the intersection on each road.

In April, 1932, the concrete paving of the last prong of the four-way intersection of U. S. Routes 178 and 15, at Rosinville, S. C., was completed. With this completion of construction the volume and speed of traffic began to increase, bringing about a corresponding increase in the number of accidents. Although the total number of collisions was not great, even after the roads were completed, they averaged a fatality for about every four accidents, and each was highly publicized by the press.

The two important highways, U. S. Routes 178 and 15, form a right-angle intersection in a level country without a surrounding town. Drivers on No. 15 upon turning the curve approaching the intersection either from the north or from the south have a clear tangent for two miles. On No. 178 they have a mile opened up. As a result, drivers on both routes "give 'em the gun."

After the routes were paved, it was immediately decided that some type of traffic controls would have to be provided. The table gives the order in which traffic-control devices were installed. Since the erection of the barricades or warning fences, there has been only *one accident* reported, and no deaths. The effectiveness of the flashers is evidenced by the fact that the accident records do not show a single wreck during hours of darkness. Speed of vehicles has been decreased from an average of 36-39 miles per hour to 25-30 miles.

Year	Reported Accidents	Killed	Injured	Notes
1932	2	1	3	Overhead flasher installed in February
1933	5	1	8	Pavement markings painted in May
1934	5	1	14	Barricades erected in July Shoulder flasher on Orangeburg Spur erected in August Shoulder flasher on Sumter Spur erected in September
1935	1	—	3	Shoulder flashers on Walterboro and Charleston Spurs erected in January
1936 (Six mos.)	0	0	0	All above devices being maintained

IT FLASHES
No night wreck since its installation

Add Harry L. Nado to List of Chamber of Commerce Veterans

The attention of THE AMERICAN CITY has been called to the fact that the list of names published in the January and February issues this year of men who have served 15 or more years as managing executives of local chambers of commerce and similar organizations throughout the United States should have included also the name of Harry L. Nado. With our apologies to Mr. Nado, we extend congratulations on his having held continuously since 1920 the position of Secretary of the Chamber of Commerce of Greenwich, Conn.

APPROACHING ROSINVILLE, S. C., ON ROUTE 15
These barricades give the impression of closing in on traffic and have slowed it down by 10 miles per hour, to 25 mph

TEN DAYS *then*

A ROAD LIKE THIS!

Calcium-Chloride-stabilized section of Ohio State Route 35, between the cities of Chillicothe and Washington Court House.

WITH STABILIZATION

WE MIGHT go on from now 'til doomsday, extolling the merits of stabilization but, after all, the proof is in the pudding. That's why we want to tell you an experience of the Ohio State Highway Department, as reported by T. E. Morgan, Assistant Division Engineer.

Last fall, after a newly-built gravel road lacked support value and was rejected by traffic, it was decided to stabilize the section. To use Mr. Morgan's words:

"We started immediately and ten days later the four-mile section was completed and opened to traffic with a six-inch compacted 'clay concrete' slab of coarse and fine aggregate and clay cement, with calcium chloride as the chemical aid to stability. The section is still open to traffic, in excellent condition and carrying an average of 1500 cars daily, of which a considerable percentage consists of heavy coal trucks on long hauls.

". . . there must be something to a theory that will provide for converting a road, thoroughly objectionable to traffic, into one entirely satisfactory to traffic, from the standpoint of support value, in the short period of ten days. Moreover, more aggregate was incorporated in that section in proper proportions in the ten-day period than could be incorporated in improper proportions in ten years by the traffic bound method, to say nothing of the wasting away of aggregate and the additional aggregate required from year to year, with its incidental maintenance costs."

Road officials everywhere are having similar experiences with calcium-chloride-stabilization. Write today for technical bulletins and complete information on how to build and maintain low-cost, all-weather stabilized roads.

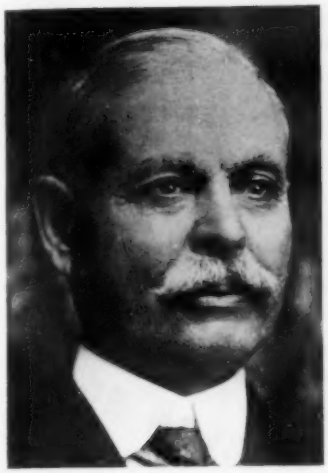
Calcium Chloride Association

The Dow Chemical Company — Midland, Mich.
Solvay Sales Corporation — 40 Rector St., New York City
The Columbia Alkali Corporation — Barberton, Ohio
Michigan Alkali Company — 60 E. 42nd St., New York City

CALCIUM CHLORIDE

FOR STABILIZING ROAD SURFACES

Four Officials Long in Municipal Service



W. W. BRIGDEN

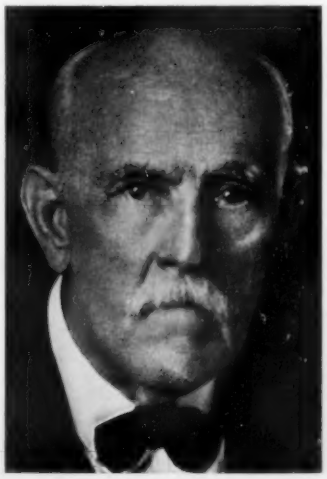
W. W. Brigden

Superintendent, Water Department, Battle Creek, Mich.

Mr. Brigden, who is 87 years old, is believed to be one of the oldest public officials in the country. He became head of the Water Department in 1886 and has held that position without interruption since that time. During his years in office the Department has grown to its present status, which has brought praise from city officials throughout the country.

Although Mr. Brigden has carried other duties and responsibilities in addition to those of Superintendent and Engineer of the Water Department, it is in connection with the public water-supply system of the city that he is chiefly known and recognized. The entire history of the present water-supply system is inextricably bound up with his name. He was the Resident Engineer in charge of its original construction, beginning in 1886, and he has been in charge of the utility practically ever since. He has personally planned every major improvement and in most instances has supervised their construction.

A testimonial dinner for Mr. Brigden was held on May 26, 1936, at which about 180 friends and associates were in attendance. Prof. W. C. Hoad of the College of Engineering of the University of Michigan was the principal speaker at the dinner, and paid tribute to the city of Battle Creek for recognizing the unusual achievement of Mr. Brigden.



WILLIAM A. RODGERS

Harry Wooding

Mayor, Danville, Va.

FOR 44 years Mayor Wooding has been chief executive of Danville. His 92d birthday was celebrated on April 27, 1936. Danville was his birthplace, and, with the exception of his war service, all his mature years have been spent in his home town.

When not quite 17 years old, he joined the Danville Greys, and after a year's service he was transferred to Company C, 5th Virginia Cavalry, with which unit he served in the Confederate Army to the end of the war between the states. He fought in the first battle of Manassas, was in the seven days' fighting around Richmond, and was also at Gettysburg.

After the war, he was in business as a merchant in Danville until 1895. He was first elected Mayor in 1892, an office his father had held for several terms. Characterizing Danville as "one of the most turbulent political towns of the Commonwealth," the *Danville Register* in its issue of April 29, 1936, said of Mayor Wooding:

"In none of his numerous campaigns has he joined the issue of partisan political battle and that, we think, really explains his extraordinary career. His were all quiet victories. Mayor Wooding is a man of good common sense and a kindly man. He is, and always has been, as far removed from the picture of the fiery Confederate in politics as one could imagine. We do not know the secret of his genius, but perhaps the one-vote majority that gave him the balance of power and assured him the office of Mayor of Danville for as long as he lived, was the final triumph of his notion that you do not make a city government for people, nor reform it for them, but that they make it themselves and that the best ministerial service of local government goes along as unobtrusively as possible with the vanguard of citizenship. It has been a successful philosophy of government, for Mayor Wooding presides today over one of the best city governments in the state, with a quarter-million-dollar surplus for 1935. He is Mayor of a town of 27,000 people, with capital assets of more than ten million dollars and with a $2,750,000 hydro-electric project under construction."

William A. Rodgers

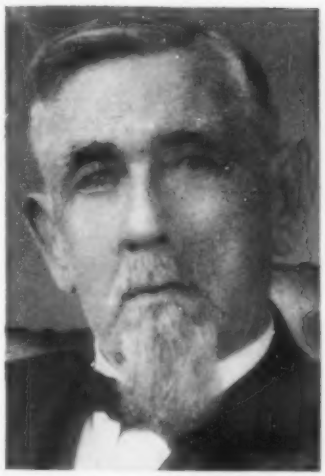
Borough Clerk, Matawan, N. J.

On March 11, 1936, Mr. Rodgers began his 51st year as Clerk of the Matawan Borough Council. He is 79 years old. His long service has been under four Republican and four Democratic mayors, only three of whom are living. Mr. Rodgers' own formula for his success in public office is to "do your duty as you see it and not try to please everybody."

At a testimonial dinner arranged by the Mayor and Council in honor of Mr. Rodgers and given on April 15, more than 100 were present. Among the officials who sent messages of their regard for Mr. Rodgers, were United States Senators W. Warren Barbour and A. Harry Moore, Governor Hoffman, former Mayor (now Congressman) William H. Sutphin, and former Mayor Christian Heuser. Mayor Edward W. Currie presided as toastmaster, and gave special recognition to Mr. Rodgers' friends of youthful years, Charles Carman, 83; H. P. Raup, 85; and John Mulsoff, 65. Former Congressman Geran, speaking for Congressman Sutphin, reviewed early local conditions and the developments that have taken place since the time when there were in the borough no public schools, not a bathroom, no running water, no sewers, electric light or power. He reminded his listeners that many noble souls lived in those days, and that the only permanent place they have in the record of the past fifty years is in Mr. Rodgers' handwriting.

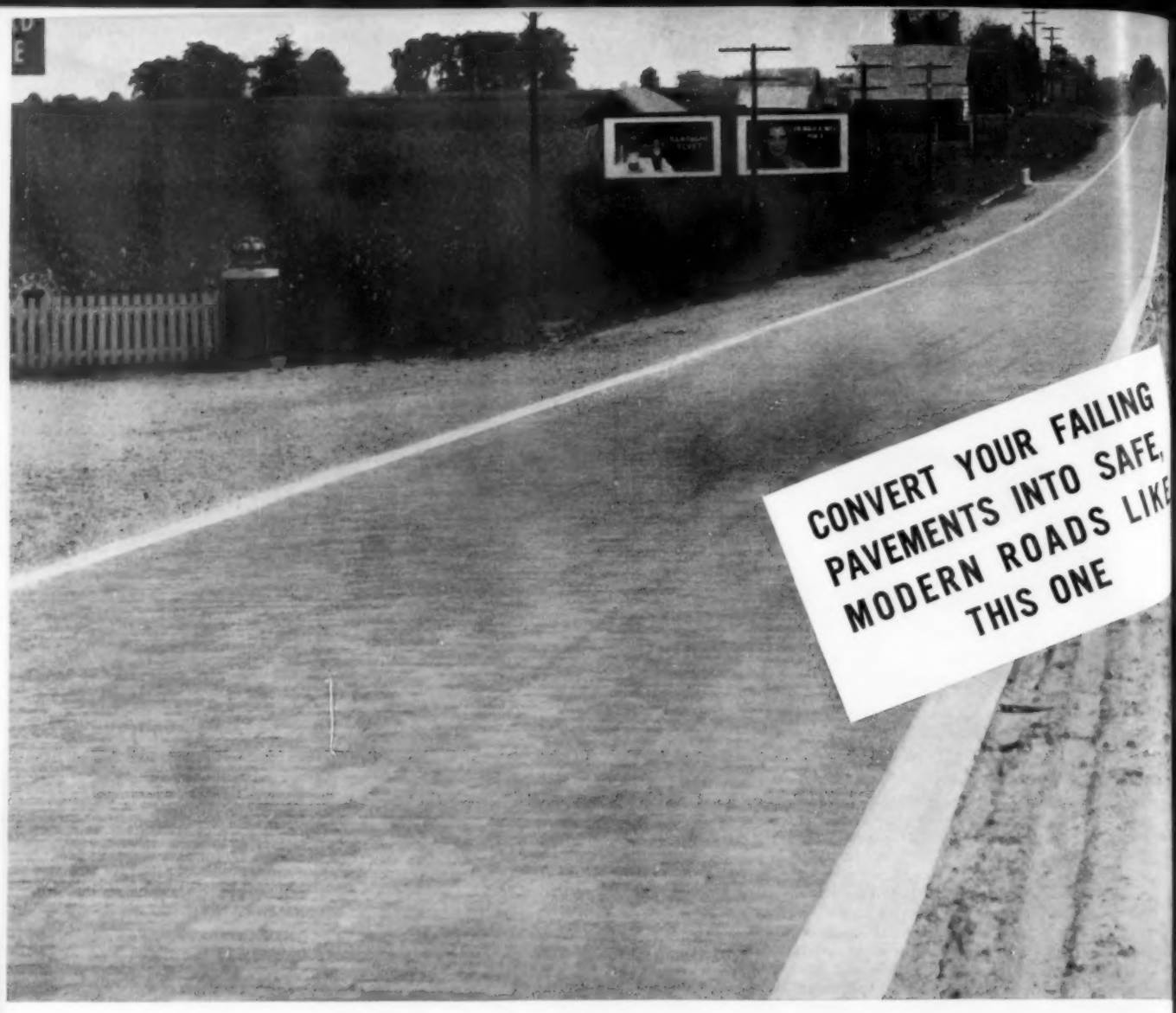
Judge Ruliff V. Lawrence also paid

(See page 91)



HARRY WOODING

HORACE G. PUTNAM



Salvage *all* the value from old pavements

● Some of the finest pavements in existence have been made out of old roads that were failing. You'll find them in several states.

The failing roads were used as a base. They were covered with a brick surface. The protection of the brick stopped further disintegration and gave new modern roads that are praised by all who use them.

There is a great salvage value in roads that are becoming unsuitable for traffic. In most cases, no better base could be built regardless of price. *The settled subgrade underneath the base is left undisturbed.* Where desirable, widening operations can be carried out when resurfacing is done.

Resurfacing with brick gives the cheapest pavement in the end on account of freedom from repairs. A successful job is assured since there is no departure from standard practice. You get a safe surface because the surface you ride on is wire-cut and anti-skid.

Full information available from National Paving Brick Association (Affiliated with Structural Clay Products, Inc.) National Press Building, Washington, D. C.

BRICK

FOR NEW CONSTRUCTION OR RESURFACE JOBS

honor to the Borough Clerk, and Mayor Currie presented to him a Hamilton gold watch from his fellow citizens. In accepting this gift, Mr. Rodgers spoke of some of the changes he has seen since he was first elected to office by ballots cast in the old ballot box still on exhibition in Borough Hall.

Horace G. Putnam

Mayor, West Jefferson, Ohio

Nine-term Mayor of West Jefferson, Mr. Putnam has recently celebrated his 81st birthday anniversary. He was born in a house that stood on the site of his present home near the center of the village. His education was obtained in schools in West Jefferson and Louisville, Ky., and in Dennison College at Granville. For four years he served in the Clerk's office in the Federal Court in Columbus, and then went to Pittsburgh, Pa., remaining there until 1902, when he returned to West Jefferson to live, engaging in the real estate business in Columbus and the surrounding territory. His first term of two years as Mayor was served in 1910 and 1911. In 1918 he was again elected, and served twelve years, until 1930. After an interval of two years, he was elected for the third time, and he still holds the office—a total of eighteen years of service.

Mayor Putnam does not claim any special recipe for success in office, though he says that a little common sense goes a long way in solving most of the difficulties and problems any official meets, and he has always tried to use as much of that commodity as possible in dealing with his home folks. Laws for the protection of life and property and necessities, and all other laws that are equitable, are strictly enforced in the village, and any offense against them is rarely repeated. The Mayor is erect and active, and popular as both host and guest. He is listed as a Democrat, but he has been elected and re-elected both as a Democrat and as an independent. His father was the first Democrat elected to office in Madison County after the Civil War, and served as County Treasurer, dying in office. Mayor Putnam plans to bequeath his old home place to the village to be used as a public library.

Police Department Costs Compared

STATISTICS relating to police department expenses of the 94 cities having a population of over 100,000 for the fiscal years 1934, 1933, and 1926 were released on July 16 by Director William L. Austin, Bureau of the Census, Department of Commerce.

This is one of a current series of releases on the total and per capita costs of the general departments of city governments for specified years.

The per capitas for 1934 are based on the estimated population as of July 1, 1933, no later estimates having been made, except for Washington, D. C., estimated as of January 1, 1934.

These statistics cover the government of the city corporation proper and also independent districts practically coextensive with the cities. They also include a percentage of the financial transactions of the county government for cities having over 300,000 population, in order that data for such cities may be comparable with those of other cities in this class in which the ordinary county functions are performed by the city government.

Included in expenses of police departments are payments for policemen and watchmen at railroad crossings or detailed for special places and occasions who are carried upon the police payroll of the city, with the exception of policemen detailed for food regulation and inspection, sanitation, and parks; all amounts paid for operating police stations, lock-ups, and other buildings used for the temporary detention of persons arrested and awaiting trial.

Classification of expenditures is based on functional activities and not on fund or budgetary appropriations.

EDITORIAL NOTE.—In comparing police department costs, readers of THE AMERICAN CITY will, of course, have in mind the fact that the proper measure of real economy in any field of public administration is the efficiency of the service both in relation to community needs and to all expenditures involved. As a recent letter to *The New York Times* suggests, consideration must be given to the "hidden costs" which do not appear in municipal budget statistics. The writer, Hugh A. Gilroy, points out that extreme budget-slashing for police service may involve "losses suffered by citizens as a result of hold-ups, burglaries, assaults and even murders. The city itself must also bear heavy losses in defending damage suits as a result of strikes, etc. . . . The thought now to be considered is whether it is worth an additional per capita cost to be assured adequate police protection, or should we continue on the old 'dollar-and-cents' yardstick economizing basis and pay many times over in hidden costs?"

PAYMENTS FOR OPERATION AND MAINTENANCE OF THE POLICE DEPARTMENT COMPARED WITH PAYMENTS FOR OPERATION AND MAINTENANCE OF ALL GENERAL DEPARTMENTS—1934

City	Total	Per Capita	Per Cent of All General Departments
GRAND TOTAL...	$170,235,670	$4.53	9.8
Group I.....	124,556,915	5.65	10.3
Group II.....	16,614,070	3.60	8.2
Group III.....	29,064,685	2.66	8.6
GROUP I—CITIES OF 500,000 AND OVER			
New York, N. Y.....	$51,492,153	$7.20	10.1
Chicago, Ill.....	16,042,242	4.60	12.8
Philadelphia, Pa.....	11,493,667	5.83	14.7
Detroit, Mich.....	9,046,874	5.43	12.5
Los Angeles, Calif....	5,493,494	4.06	7.5
Cleveland, Ohio.....	3,140,383	3.42	7.3
St. Louis, Mo.....	4,960,120	5.97	15.9
Baltimore, Md.....	4,185,800	5.12	12.2
Boston, Mass.....	4,882,537	6.20	8.4
Pittsburgh, Pa.....	2,537,471	3.74	7.6
San Francisco, Calif..	3,118,618	4.75	9.3
Milwaukee, Wis.....	2,527,262	4.22	6.9
Buffalo, N. Y.....	2,630,085	4.50	6.3
Washington, D. C.....	3,006,209	5.62	8.7
GROUP II—CITIES OF 300,000 TO 500,000			
Minneapolis, Minn...	$1,152,705	$2.41	4.8
New Orleans, La.....	1,470,919	3.12	12.3
Cincinnati, Ohio.....	1,237,794	2.69	5.2
Newark, N. J.....	3,351,221	7.50	12.4
Kansas City, Mo.....	979,642	2.37	7.2
Seattle, Wash.....	1,277,737	3.42	8.7
Indianapolis, Ind....	1,059,464	2.85	8.5
Rochester, N. Y.....	1,023,711	3.07	4.1
Jersey City, N. J.....	2,661,270	8.32	13.1
Houston, Texas.....	564,698	1.78	7.7
Louisville, Ky.....	1,039,517	3.27	10.2
Portland, Ore.....	795,392	2.57	7.3
GROUP III—CITIES OF 100,000 TO 300,000			
Columbus, Ohio.....	$595,253	$1.99	7.8
Toledo, Ohio.....	772,917	2.59	9.9
Oakland, Calif.	908,134	3.07	9.7
Denver, Colo.....	814,620	2.78	6.7
Atlanta, Ga.....	810,451	2.89	11.0
Dallas, Texas.....	441,033	1.59	8.1
St. Paul, Minn.....	602,746	2.17	8.1
Birmingham, Ala.....	372,074	1.36	8.9
Akron, Ohio.....	$371,156	$1.40	6.2
Memphis, Tenn.....	447,780	1.71	9.1
Providence, R. I.....	1,108,669	4.34	9.8
San Antonio, Texas..	242,324	1.00	7.0
Omaha, Nebr.....	460,014	2.11	8.7
Syracuse, N. Y.....	699,085	3.26	6.1
Dayton, Ohio.....	384,319	1.86	7.8
Oklahoma City, Okla.	366,350	1.82	10.3
Worcester, Mass.....	947,343	4.78	8.8
Richmond, Va.....	477,712	2.58	8.5
Youngstown, Ohio....	362,869	2.08	6.7
Grand Rapids, Mich.	393,074	2.27	8.1
Fort Worth, Texas...	318,614	1.88	8.4
Hartford, Conn.....	806,509	4.79	9.2
Flint, Mich.....	301,268	1.80	5.9
New Haven, Conn....	793,498	4.88	10.6
San Diego, Calif....	405,497	2.53	9.1
Long Beach, Calif....	421,139	2.68	7.6
Nashville, Tenn.....	396,839	2.54	11.7
Springfield, Mass.....	657,209	4.28	7.5
Tulsa, Okla.....	242,940	1.64	8.2
Bridgeport, Conn.....	710,487	4.82	9.1
Des Moines, Iowa....	281,390	1.94	6.8
Scranton, Pa.....	340,712	2.36	7.4
Salt Lake City, Utah	292,385	2.03	7.4
Yonkers, N. Y.....	838,279	5.97	9.0
Paterson, N. J.....	579,762	4.17	9.4
Jacksonville, Fla.....	394,356	2.84	11.0
Albany, N. Y.....	824,376	6.35	11.9
Norfolk, Va.....	399,265	3.08	10.4
Trenton, N. J.....	478,466	3.86	10.6
Chattanooga, Tenn....	207,150	1.68	8.8
Kansas City, Kans....	215,541	1.75	9.8
Fort Wayne, Ind.....	225,967	1.88	9.4
Camden, N. J.....	386,785	3.25	10.6
Erie, Pa.....	213,882	1.81	7.4
Elizabeth, N. J.....	453,757	3.85	10.6
Wichita, Kans.....	189,306	1.61	6.8
Spokane, Wash.....	195,259	1.67	7.2
Fall River, Mass.....	349,246	3.03	9.1
Cambridge, Mass.....	516,552	4.52	8.9
New Bedford, Mass...	412,971	3.67	9.9
Reading, Pa.....	265,282	2.37	8.7
Knoxville, Tenn.....	237,490	2.15	10.5
Peoria, Ill.....	210,828	1.92	7.7
South Bend, Ind.....	169,227	1.54	7.5
Tacoma, Wash.....	188,180	1.74	6.6
Miami, Fla.....	333,872	3.09	10.5
Gary, Ind.....	272,171	2.52	11.0
Canton, Ohio.....	139,150	1.29	5.5
Wilmington, Del.....	318,469	2.99	10.8
Tampa, Fla.....	207,677	1.95	8.7
Somerville, Mass.....	314,166	2.97	7.1
El Paso, Texas.....	134,144	1.27	8.7
Evansville, Ind.....	256,211	2.44	11.9
Lynn, Mass.....	344,188	3.34	7.4
Utica, N. Y.....	337,240	3.29	6.9
Duluth, Minn.....	232,873	2.29	7.4
Waterbury, Conn.....	357,107	3.53	7.7
Lowell, Mass.....	319,080	3.18	8.1

San Antonio Contracts for 1,000 *original* Carl Magee Meters

San Antonio is one of those rare cities where the old world meets the new. Consequently is isn't surprising that in the shadow of the historic Alamo you will soon find that modern answer to the parking problem — PARK-O-METERS. 1,000 of these attractive meters will soon be in active operation in San Antonio's business district . . . controlling parking . . . helping business . . . increasing city revenue . . . and promoting safety. More than ever people will want to visit this beautiful city where parking spaces are easy to find. Your city, too, needs Park-O-Meters. Write for details — today.

BULLETIN: Park-O-Meters are now in operation in Meadville, Pa.

DUAL PARKING METER CO.

Commerce Exchange Bldg. ***Carl C. Magee, President*** Oklahoma City, Okla.

WHAT PRICE DELAYED ALARMS?

FIRE LOSS— $4,000,000,000

Statistics compiled and published show the national fire loss for ten years—1926 to 1935 inclusive—to be in excess of the above figure.

Nearly all fires may be extinguished in their incipiency by a bucket of water.

The *Fire Alarm Box* is the only available and ever accessible means for transmitting fire alarms *directly* to the *fire department.*

Are your citizens not entitled to this protection?

THE GAMEWELL CO.

NEWTON MASSACHUSETTS

Objections to the Governmental or Proprietary Test of Municipal Liability

"WHAT can be done," asks Murray Seasongood, of Cincinnati, Ohio, "towards arresting the tendency to decide questions that pertain to municipal liabilities, rights and powers by the formula: does the matter concern the city in its governmental or in its private capacity?"

In the June, 1936, issue of the *Virginia Law Review* the former President of the National Municipal League contends that the reasons advanced for the distinction are faulty and unsuited to modern conditions; that the touchstone, while held inapplicable in numerous instances, is often used for deciding controversies in which it should have no place; and that it leads to difficulty in application and often to absurd and unjust consequences.

"It is impossible," says Mr. Seasongood," to explain to one who has had a fractured skull that his mistake was in having the break result from operation of a city fire truck rather than from a city-owned passenger bus or street railway, or that, if the injury was from a city park vehicle, he was injured in the wrong state where park maintenance is treated as governmental."

The 35-page article, amply supported by citations, closes as follows:

"Constitutions should be amended and statutes passed doing away with city exemption from liability based on governmental immunity, and in home rule cities ordinances for the same purpose should be enacted if the state legislature is dilatory in promulgating suitable statutes. This will be just not only to the person otherwise deprived of a remedy, but also to the city officer or employee. The latter does not have the exemption of the sovereign; yet the injured person, denied a remedy against the principal, sometimes turns in hope of at least partial redress to action against him. Any effort to restrict the use of the terms and of the doctrine will be in the public interest."

Pasadena's Disaster Preparedness Plan

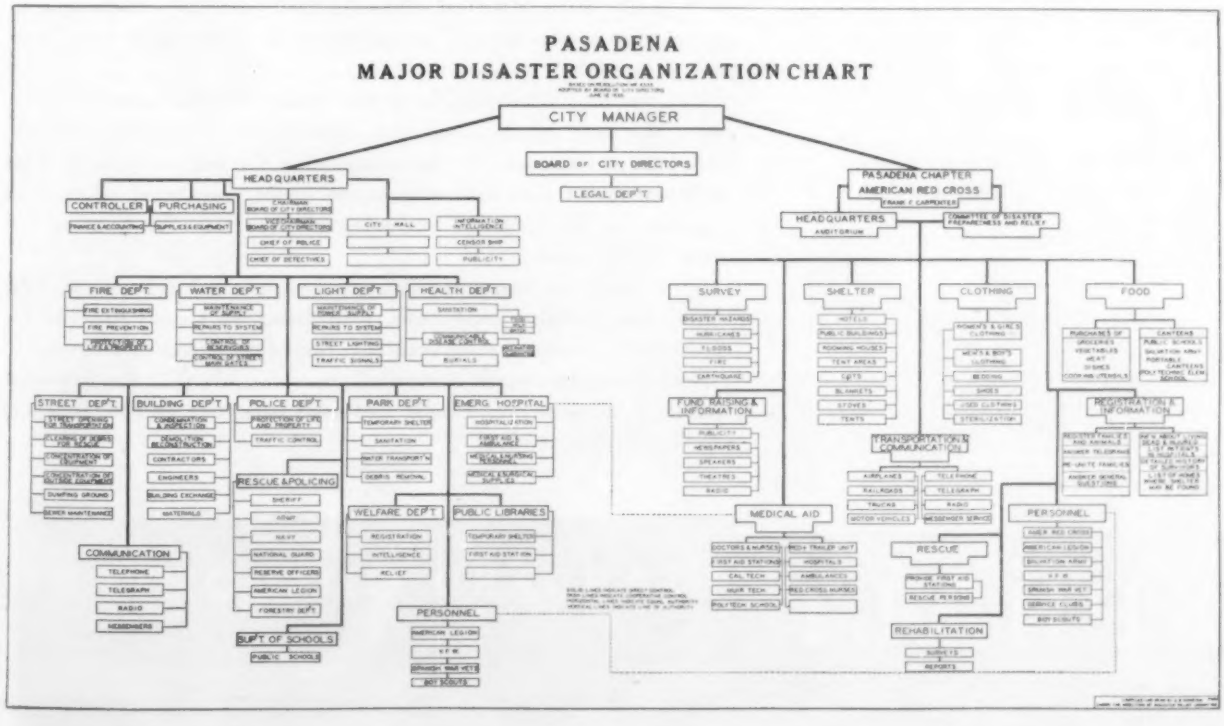
PASADENA, CALIF.—Pasadena has had a major disaster preparedness plan, established by Resolution, since May, 1927. In view of the imperative need of such preparation emphasized by recent sudden calamities, this Resolution (No. 6555) may be interesting to other cities that desire to meet "quickly and effectively those conditions and circumstances threatening the public peace, health, morals, safety and general welfare that may follow any local disaster or other public emergency."

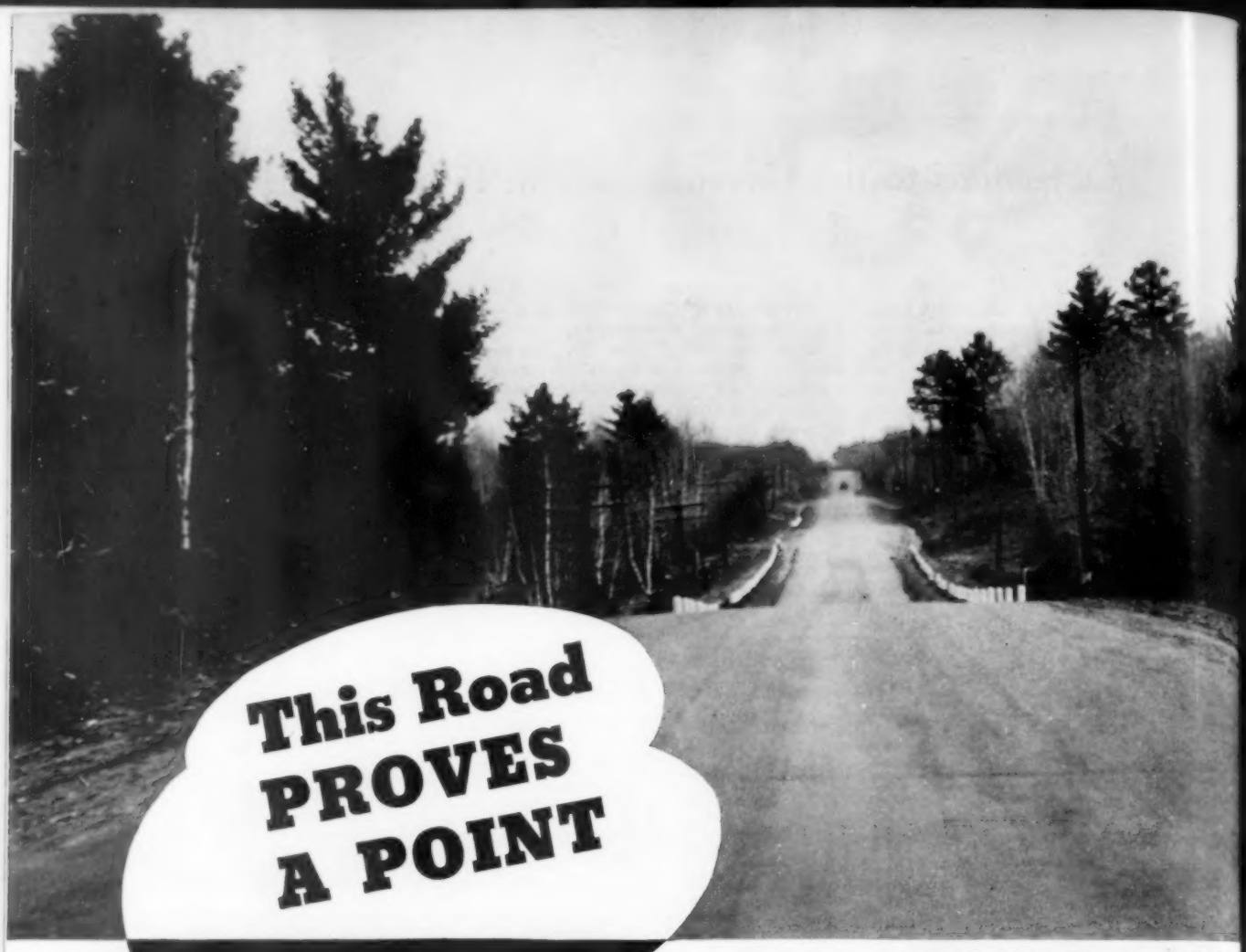
The various sections of the Resolution, in sequence, set forth the following:

Who shall execute the plan, and in what spirit.
What constitutes an emergency.
Who shall declare an emergency.
The duty of informing the City Manager, or his representative, of the emergency; also the Chairman of the Board of Directors; and their initial action.
Methods of announcing the emergency.
Specified headquarters for the directing-officials in the emergency; for the Board of Directors; and for the press.
Communication with American Red Cross.
Notifying public utilities.
Coordination of functions of city government and Red Cross.
Emergency telephone service for exclusive use of those in charge.
Use of city-owned motor equipment.
Motorcycle messenger service.
Shutting off gas and electricity.
Requesting outside assistance.
Transportation for outside assistance.
Care of field forces, and their duties.
Duty of city employees who are members of the National Guard.
Flexibility of the disaster plan.
Preparation and distribution of organization chart.
Detailed plans of departments.
Paramount powers of Board of Directors.
Mobilization test calls.

The Pasadena Major Disaster Organization Chart is herewith reproduced. A copy of Resolution No. 6555 may be obtained from the City Clerk of Pasadena.

C. W. KOINER,
City Manager.





This Road PROVES A POINT

Between Eagle River, Wisconsin, and Eagle La

WHEELS of business glide more smoothly, more swiftly and more surely over improved highways and secondary roads, guaranteeing more profitable and better living to communities with *road-paving foresight.*

Vilas county, Wisconsin, is in the "Heart O' The Lakes" district, called the most concentrated lake region in the world. Few localities have been so successful in the competition for tourist business. Tens of thousands of cars visit this region every year, most of them in summer, but an annually increasing number also for hunting and other winter sports.

Good roads are important the year around, and at low cost Vilas county has provided good roads, with Stanolind Liquid Asphalt. Inexpensive to construct, three years have passed without need of *one* repair.

Your community needs economical pavements like this. For full information on construction details and costs call your nearest Standard Oil (Ind.) office or write.

Copr. 1936, Standard Oil Co.

ASPHALT *goes farther*

STANDARD OIL COMPANY
910 S. MICHIGAN AVE. *(Indiana)* CHICAGO, ILL.

IN LONG-WEARING ROAD MILES . . . *IN* DISTRIBUTION OF LABOR . . . *IN* TAXPAYER SATISFACTION

U. S. Conference of Mayors Announces Establishment of Four Affiliated Groups of City Officials

THE United States Conference of Mayors has announced the establishment of four new affiliated national organizations to function under the auspices of the Conference. These are:

Department of Public Works Officials
Department of Municipal Finance Officers
Department of Purchasing Agents
Department of City Clerks

The main purpose of each of the new organizations will be to provide effective interchange of experience and information between cities, in those matters which are of special interest to the above four departments or branches of city government.

Among the special duties of each of the four departments will be the following:

1. The study of those municipal problems which confront the above groups of municipal officials.
2. The maintenance of a special Municipal Information Service for each of the four branches of city government being organized.
3. The cooperation of each of the Departments with the Governing Boards of the Conference of Mayors on functional problems of municipal administration.
4. The publication of research reports and informational bulletins dealing with the individual problems of these four branches of city government.
5. The study of such matters before the Federal Government as may be of particular concern to the above four branches of city government.

Members of the Governing Boards for each of the Departments have been elected as follows:

DEPARTMENT OF PUBLIC WORKS OFFICIALS

Lloyd Aldrich, City Engineer, Los Angeles
James W. Costello, Chief Engineer, Newark
B. L. Crozier, Chief Engineer, Baltimore
Clyde Healy, Assistant City Engineer, San Francisco
Oscar E. Hewitt, Commissioner of Public Works, Chicago
L. G. Lenhardt, Commissioner of Public Works, Detroit
Joseph P. Skelly, Commissioner of Public Property, New Orleans

DEPARTMENT OF MUNICIPAL FINANCE OFFICERS

Cecil F. Bates, Commissioner of Finance, Mobile
Albert E. Cobo, City Treasurer, Detroit
John T. Connors, Commissioner of Accounts and Finance, East St. Louis
Herbert Fallin, Budget Director, Baltimore
George H. Gabb, City Treasurer, Hartford
Leonard S. Leavy, City Comptroller, San Francisco
John R. Lindsay, Director of Finance, Louisville
R. E. Riley, Commissioner of Finance, Portland, Ore.
R. B. Upham, City Comptroller, Chicago

DEPARTMENT OF PURCHASING AGENTS

T. A. Brooks, Purchaser of Supplies, San Francisco
G. E. Eichhorn, Purchasing Agent, Greensboro
J. H. Gaston, Purchasing Agent, Baltimore
A. J. Holm, Purchasing Agent, Los Angeles
Joseph W. Nicholson, Purchasing Agent, Milwaukee
William M. Walker, Jr., Commissioner of Purchases, Detroit

DEPARTMENT OF CITY CLERKS

W. C. Almand, Recorder, Jacksonville
O. A. Dirkes, City Clerk, Spokane
W. J. Doyle, City Clerk, Boston
S. H. Hendrix, City Clerk, Mobile
Frank J. Kelly, City Clerk, Miami
Bertram L. Nagle, City Clerk, Bethlehem
Ethel MacDonald, City Recorder, Salt Lake City
Raymond P. McElroy, City Clerk, Providence
D. C. Miller, City Clerk, Memphis
Richard W. Reading, City Clerk, Detroit
Harry S. Reichenstein, City Clerk, Newark
Fred Schwarzkopf, City Clerk, Bridgeport

Six-Year Budget of Local Construction Projects Urged by National Resources Committee

TO develop an integrated program of future public works, the National Resources Committee has suggested to the 46 State Planning Boards the desirability of their preparing a six-year construction budget, it was announced on July 29 by Secretary Harold L. Ickes, Chairman of the National Resources Committee. In urging such a program, with priorities of time and importance, the Committee believes that a reservoir of approved projects should be created to serve as a guide in the outlay of the millions expended annually by Federal, state and local governments in normal times as well as in periods of unemployment. Preparation of the contemplated program will have the full support of the Public Works Administration, the Works Progress Administration and other interested Federal agencies.

In his letter to State Planning Boards requesting their active cooperation, Secretary Ickes said, in part:

"The National Resources Committee has consistently advocated the advance planning of public works construction. It has seemed advisable that such programming should be done so far as possible by the localities immediately concerned, and in the form of a six-year budget of construction projects, arranged in order of priority and continuously revised and kept up to date.

"For the inventory of Federal Projects the Committee has secured the assistance of the Public Works Administration, which will confer with all Federal construction agencies. It is hoped that the distribution of reporting forms to state and local agencies may be made through the State Planning Boards, and it is the earnest hope of the National Resources Committee that the Boards will find themselves able to offer the further service of receiving back the filled-out forms, and reviewing and rating these before they are sent to the Resources Committee at Washington for final tabulation."

The method to be followed in making the inventory is designed to enlist the cooperation of state and local government officials as well as of the state and local planning boards. Briefly, suggested forms will be supplied on request by the National Resources Committee for transmission by the State Planning Boards to state departments and local governments throughout the state. Projects may be described on these forms by the local officials, cooperating wherever possible with local planning boards, and on their return would be classified and summarized by the State Planning Boards. From summaries transmitted by State Planning Boards to the National Resources Committee, it is expected that a broad, national program, flexible but inclusive, will be compiled for the use of whatever agencies will hereafter wish to refer to it.

Special attention will be given to water problems with a view to minimizing future drought and flood damage.

The Municipal Bond Market

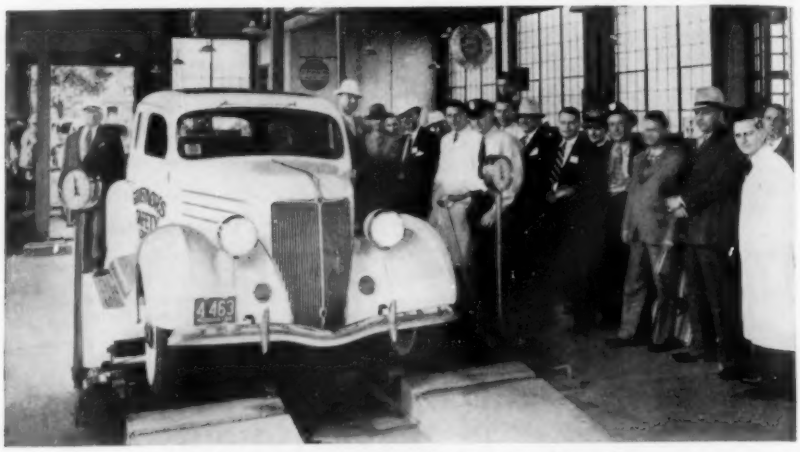
Recent sales of new issues from the July numbers of *The Bond Buyer*:

Amount	Borrower and Purpose	Rate (%)	Term (Years)	Basis (%)
$200,000	Cambridge, Mass., Street	1.25	1-5 Ser.	1.23
1,300,000	Middlesex Co., Conn., Bridge	1.5	1-10 Ser.	1.40
150,000	Fitchburg, Mass., Relief	1.75	1-10 Ser.	1.73
160,000	Huntington, N. Y., Emergency Relief	2	6.25 Avg.	1.91
100,000	St. Paul, Minn., Public Welfare	2.10	5.83 Avg.	2.07
200,000	Ramsey Co., Minn., Public Welfare	2.25	5.5 Avg.	2.09
120,000	Stratford, Conn., Public Welfare	2.25	1-15 Ser.	2.19
2,000,000	Providence, R. I., PWA School	3	19 Avg.	2.30
120,000	Meadville, Pa., School District	2.75	1-24 Ser.	2.37
357,000	Clifton, N. J., Water Supply of 1936	3.5	29.75 Avg.	2.43
177,000	Springfield Tp., Pa., Refunding	2.5	11.66 Avg.	2.47
600,000	Scranton, Pa., School	2.75	10.33 Avg.	2.56
136,000	Bellefonte, Pa., Funding	2.75	16.83 Avg.	2.64
170,000	Latrobe, Pa., School	2.75	16.5 Avg.	2.65
117,000	Lucas Co., Ohio, Refunding	3	6.16-15 Opt.	2.72
120,000	Manchester, N. Y., Improvement and Equipment	3	1-20 Ser.	2.82

POLICE DEPARTMENT TESTS A CAR A MINUTE · · · AVERAGES 30 CARS AN HOUR FOR 5 DAYS · · · DURING

South Bend Safety Week

MIAMI
CINCINNATI
BILLINGS
KNOXVILLE
join the march for
Safer Streets!



The Governor's own car takes its turn, down the Safety Lane, during "South Bend Safety Week."

CELEBRATING "South Bend Safety Week," the South Bend Police Department conducted a spectacular five-day Free Car-Testing Clinic. Hour after hour—day after day—the stream of cars passed swiftly through the efficient Safety Lane, fully equipped with famous Bendix Civic Safety Clinic equipment. A car a minute during "peak" periods—30 cars an hour average for the whole five days! Brakes tested for perfect balance! Steering tested for play, for caster, camber, toe-in, knuckle and king-pin adjustment! Lights, horn, mirror, windshield cleaner—all checked and condition accurately recorded! Nothing equals the precision and rapidity of this great line of apparatus. That's why most car manufacturers use Bendix equipment for final inspection. That's why city after city joins the march for Safer Streets!

BENDIX PRODUCTS CORPORATION

(Subsidiary of Bendix Aviation Corporation)

401 Bendix Drive, Dept. A-8, South Bend, Indiana

BENDIX

Civic Safety Clinic

BENDIX IS PLEDGED TO SAFETY

BENDIX PRODUCTS CORPORATION
401 Bendix Drive, Dept A-8, South Bend, Ind.

Send me at once full details about Civic Safety Clinic Equipment, prices, operating plan, etc.

Name .....

Address .....

City ..... *State* .....

Business or Profession .....

City Official (title) ☐ Dealer ☐

Traffic Control and Facilitation

Conducted by Publications Committee, Institute of Traffic Engineers, 1 Park Ave., New York

Paul L. Green, Chairman; John Gibala, Vice-Chairman; Donald M. McNeil, Dwight M. McCracken, D. Grant Mickle, Robert A. Mitchell, Edward J. O'Meara, John C. Wrighton, Charles G. Beckenbach, Bruce D. Greenshields, Leslie J. Sorenson, Charles H. Rex, Tracy D. LeMay

Traffic Mardi Gras in Pittsburgh

By DONALD M. McNEIL
Traffic Engineer, Pittsburgh, Pa.

DEATH, in white skull and black robes, drove the streets of downtown Pittsburgh a month ago, as did figurative portrayals of the Road Hog, Horn Driver and other motoring characterizations, in a parade opening the second annual Pittsburgh Jubilee and Exposition.

Featuring the noonday parade were twenty educational floats concerned with traffic safety, entered by the City Bureau of Traffic Planning and the citizen's Better Traffic Committee.

The armored pedestrian, revealing appropriate dress for jaywalking safety, and the pedestrian who had two good eyes but did not use them, walked the streets showing the thousands of spectators why and how accidents happen. Other motorized floats graphically presented the traffic accident problem, told that Pittsburgh accidents claimed 135 lives last year, injured 4,000 persons, and resulted in an economic loss to the community of $7,000,000.

An outline of floats in the parade, some of which are illustrated on the front cover of this issue, follows:

Bureau Sedan.—Sign on top, reading: TRAFFIC SAFETY DISPLAYS SPONSORED BY BUREAU OF TRAFFIC PLANNING—BETTER TRAFFIC COMMITTEE.

School Boy Patrol.—Marching group of 20 school patrol boys, equipped with white "Sam Browne" belts. Group led by motorcycle officer, with boy in side car holding sign reading: PATROL BOYS HELP CHILDREN LEARN SAFETY.

Horse and Buggy.—Blanket type of sign over horse reading ONE HORSE POWER AND HORSE SENSE. Man and woman in buggy dressed in style of the "90's." Sign on rear of buggy: 80 HORSE POWER AUTOS HAVE NO HORSE SENSE—IT'S UP TO THE DRIVER.

Tombstone.—Mounted on truck body, body covered with artificial grass. "Pa Pitt," in colonial costume, kneeling in front of tombstone. Ferns and wreath at base of tombstone. Tombstone wording: IN MEMORY OF 135 PITTSBURGHERS KILLED ON CITY STREETS—1935.

Armored Pedestrian.—Pedestrian in suit of armor, with sign on back reading: PEDESTRIANS AREN'T ARMORED—THEY BRUISE EASY.

Death at the Wheel.—Figure of Death, in skull head and black robe, driving roadster. Sign in rear, and banner signs on hood, reading: DEATH TAKES THE WHEEL WHEN YOU SPEED.

Tow Truck and Wrecked Car.—Tow truck pulling wrecked car. Sign on top of tow truck: SPEED NEVER PAYS—YOU MAY BE NEXT. Arrow on this sign pointing to wreck. Signs on sides of tow truck: 2,000 HAULED AWAY IN PITTSBURGH LAST YEAR.

Horn Driver.—Gigantic composition horn, extending over hood of phaeton, and resting in driver's seat. Car horn continually blown by driver hidden in composition horn. Banner signs on sides of hood: DRIVE WITH YOUR HEAD, NOT YOUR HORN. Sign on rear: MR. HORNBLOWER—PLEASE—LESS NOISE—MORE COURTESY.

Big-eyed Pedestrian.—Pedestrian in huge composition false head, with prominent eyes. Sign on back: MY EYES ARE GOOD BUT I DO NOT USE THEM.

Hearse.—Signs on each side, reading: PITTSBURGH TRAFFIC VICTIM NO. 56 THIS YEAR.

Gambling.—Pair of large dice, turning on axial rod, mounted on truck body. Cut-out traffic scenes bordering truck body. Signs on sides of truck: WHY GAMBLE IN TRAFFIC? THE STAKES ARE HUMAN LIVES. Sign on rear: TAKE CARE—NOT CHANCES.

Hospital.—Hospital scene on truck body, with doctor, nurse and patient. Patient in bed with bandaged leg suspended in air. Signs on sides of truck: THE NEXT VICTIM MIGHT BE YOU. Sign on rear: 4,000 PERSONS SERIOUSLY INJURED EACH YEAR IN PITTSBURGH TRAFFIC ACCIDENTS.

Blind Pedestrians.—Pedestrian in composition false head with bandage over eyes. Sign on back: JAYWALKERS ARE BLIND TO DANGER.

Jail.—Scene on truck body. Man in convict suit inside jail cell. Man in civilian clothes outside on park bench. Sign on cell: GUNMAN. Sign on bench: AUTO KILLER. Signs on sides of truck: THEY BOTH ARE KILLERS YET ONE GOES FREE. Sign on rear of truck: PUBLIC OPINION CAN ELIMINATE THESE KILLERS.

Economic Loss.—Money bags marked with $ signs stacked in pyramid style on truck body. Sign at top of stack: $7,000,000. Signs on sides of truck: ANNUAL ECONOMIC LOSS IN PITTSBURGH TRAFFIC ACCIDENTS. Sign on rear of truck: SAFETY IS ECONOMY.

Road Hog.—Gigantic composition figure of a hog in driver's seat of phaeton. Banner signs on hood, and sign on rear, reading: MR. ROADHOG—ARE YOU ONE?

Cook Pot.—Scene on truck body. Tripod at rear supporting huge iron caldron labeled: SAFETY. Imitation fire under caldron, and steam (dry ice and water) issuing from caldron. Table near truck cab holding three large cans labeled: COURTESY, CARE and COOPERATION. Colored streamers going from each ingredient can to caldron. Signs on sides of truck: IT ALL BOILS DOWN TO SAFETY. Sign on rear of truck: ALERT TODAY—ALIVE TOMORROW.

Signal Truck.—Traffic light mounted on top of city maintenance truck. Signs on sides of truck: FOR YOUR PROTECTION—270 SIGNALIZED CORNERS—200 FLASHING STOP SIGNALS—185 FLASHING BEACONS. Sign on rear of truck: EACH SIGNAL IS INSPECTED ONCE EVERY DAY.

Sign Truck.—City maintenance truck with melange of signs on side, similar to: DETOUR—WATCH CHILDREN—NO LEFT TURN, etc. Sign on rear of truck: EACH TRAFFIC SIGN WARNS OF A SPECIFIC HAZARD—OBEY AND BE SAFE.

Steam Jenny.—Cleaning truck with group of traffic signs mounted on rack in rear. Steam nozzle in operation. Signs on sides of truck: THE CITY OF PITTSBURGH CLEANS 30,000 PIECES OF TRAFFIC EQUIPMENT TWICE EACH YEAR. Sign on rear of truck: SIGNS AND SIGNALS PREVENT ACCIDENTS ONLY WHEN OBEYED.

A free "Traffic Clinic" at which drivers were given opportunity to measure their driving ability comprised one of the many interesting exhibits of city departments during the Jubilee Week. Loaned by the Aetna Casualty and Surety Co. to the Bureau of Traffic Planning and the Better Traffic Committee, a series of electrical and mechanical testing instruments determined reaction time, susceptibility to headlight glare, speed estimation ability, steering proficiency, and color blindness. The theme of the exhibit compared the Traffic Clinic with a medical clinic, driving ability examinations with periodic health examinations. Attendants were labeled "traffic doctors" and dressed in white doctor frocks.

Data obtained on the various test machines were placed on tabulator cards and are now being checked for the purpose of comparing Pittsburgh drivers with those in other cities. Sex, age, driving experience and educational factors are to be analysed. Motorists found deficient in any respect were told of their deficiencies and advised for their own safety to compensate in driving by avoiding high speeds, allowing greater following distances, or refraining from unnecessary night driving.

The Des Moines Motor-Vehicle Testing Station

By HARRY E. STEDMAN
Chief Electrical Inspector, Department of Public Safety

OUT of the records of 110,508 cars that have been tested in the motor-vehicle testing station in Des Moines, Iowa, the third period of whose service is now in progress, the following averages have been computed: 17.5 per cent have been found to have defective light; 29.7 per cent, defective brakes; 19 per cent, defective horns; 7.7 per cent defective tail-lights; .016 per cent, defective windshields; and .04 per cent defective emergency brakes; all based on the requirements of the State Motor Vehicle Law.

Many other things have been tested, such as windshield wipers and wheel alignment, and when defects were found in these cases it was only recommended to the motorist that they be corrected, since the state law does not cover the testing of this equipment. The motorist appreciated the additional service, which gave an opportunity to explain to him how poor alignment would affect his driving when making quick turns, and to compute the actual loss in mileage on his tires.

Latest figures show 2,500,000 motor vehicle registrations in California . . . greatest in history. Other States show comparable increases. Each new car adds to acute downtown parking problem. Parking Tax-O-Meter offers the newest, most efficient method of coping with the situation

X YES Votes the City

The system is installed WITHOUT COST to the city on a pay-its-own-way basis. Provides an added source of revenue. Reduces mounting costs of traffice regulation.

X YES Votes the Merchant

Increases curb turn-over of cars parking before business places. (Each such car has a definite potential customer value as determined by survey under Ralph T. Dorsey, Traffice Engineer for the City of Los Angeles. Copies upon request.)

X YES Votes the Motorist

Parking Tax-O-Meter system ends the exasperating hunt for space. Fair and impartial. Eliminates the parking hog. Cost is neglible compared with the benefits obtained. It offends only the chronic violator of present-time regulatory efforts.

Why wait? Other cities successfully use the meter system for control. Full details mailed at once on request.

Parking Tax-O-Meter

Distributors

KEYSTONE SALES EQUIPMENT CO
Stroudsburg, Penn.
POWER MACHINERY CO
Dwight Building, Kansas City, Mo.
GENERAL MACHINERY CO
Spokane, Washington

Security Bldg.
LONG BEACH
CALIFORNIA

•

OPPORTUNITY

for distributors in unassigned territory. Write at once for consideration.

Indian gets 'em!

When some scatterbrain hits and runs on your highways, it's no trick at all to track him down with an Indian Motocycle.

But—*get this!*—the mere fact that people know you have an adequate highway patrol will *definitely curb reckless driving!* Indian Motocycles are doing an outstanding job—*economically*—in police service. Write for facts.

PATROLLED HIGHWAYS ARE *SAFER*

Indian MOTOCYCLES

INDIAN MOTOCYCLE COMPANY
DEPT. AC-8 SPRINGFIELD, MASS.

The method by which municipal inspection of motor vehicles in Des Moines was established was as follows:

A subcommittee of the Chamber of Commerce Good Roads Committee of Des Moines decided, in 1934, that the poor mechanical condition of the motor vehicles being driven on the streets was contributing largely to traffic accidents. The City Council was asked to set up legally a Traffic Safety Council of at least eight persons, five to be selected from the departments of the city government interested in the control of traffic—legal, police, street, transportation supervision, and electrical (covering the installation and operation of traffic signals), and the remaining members to be interested citizens. An ordinance was promptly passed permitting the formation of such a committee and granting it the authority to test motor vehicles.

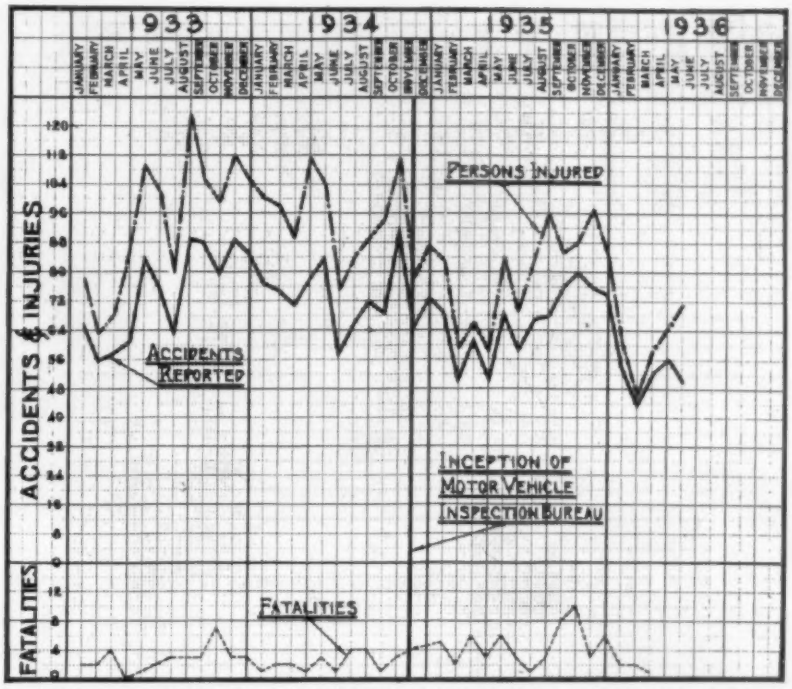
After a visit to Memphis, the city which had made the greatest progress with municipal inspection of motor vehicles, the Traffic Safety Council set up a plan. It was decided to erect a building and to install testing equipment, making use of FERA laborers. Credit was secured from interested citizens for the necessary materials. A budget was then carefully prepared, allowing eighteen months to retire a certain portion of the indebtedness. The income was set at $18,500, and operating expenses were outlined, including salaries and the many other expected costs. The Council presented this budget, with its applications for credit, and the eighteen-month credit extension was agreed upon.

The next step was to get into operation. The testing-station attendants were carefully selected for courtesy and salesmanship. The employees received instruction from the manufacturer of the testing equipment for nearly a week before the station was opened. Meanwhile, generous and correct publicity by the local papers prepared the public.

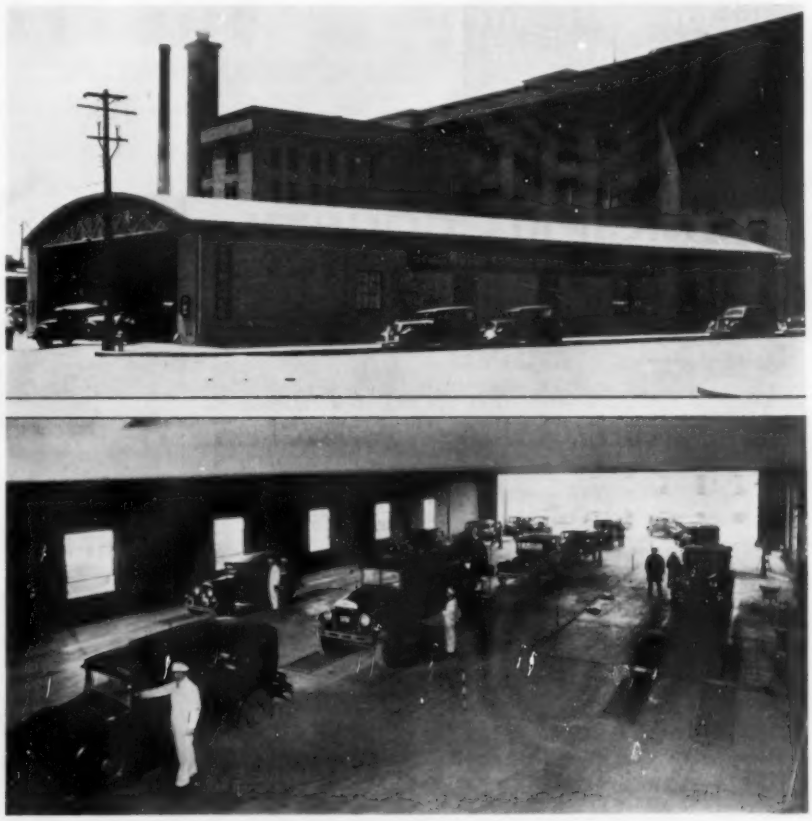
After a short period of successful operation, a suit was brought into court based upon the fact that the Traffic Safety Council had no authority to test cars under the state law. However, the Court decreed that the Mayor and the City Council had the authority to test cars under emergency police powers.

The curve shown illustrates, in part, the success of the inspection campaign. Accidents and injuries are plotted against time. After the point of the inception of the testing station and after some time of operation, the curves tend to coincide. It is possible to make a tentative deduction from this that cars are in better shape, show better control and ability to stop. Of course a large margin of error should be allowed for in any such deduction, due to the many factors not taken into consideration. An additional claim which we feel justified in making is that we have been in touch with more than 150,000 people and had a three- or four-minute period with the majority of them devoted to thoughts and discussion of automobile safety. These minutes cannot have been without some constructive effect.

A further observation we have made shows that 24.4 per cent of the cars involved in accidents in our city have come from out of town and have not been tested. In consequence we feel justified in advocating state-wide tests, and we hope in the near future to have further statistics which will point out this need more conclusively.



ACCIDENTS, INJURIES AND FATALITIES IN DES MOINES, BEFORE AND AFTER INCEPTION OF TESTING STATION



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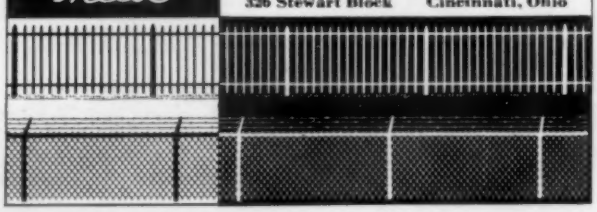

Prepared by
FRANK B. WILLIAMS
Author of "The Law of
City Planning and Zoning"

Zoning and Planning Notes

From Data collected
by the Zoning Committee
of New York
(233 Broadway)

Zoning Ordinance—Mandamus

COLORADO.—*Hedgecock, Building Inspector v. People in re Arden Realty and Investment Co.*, 57 Pac. 891 (Supreme Court, April 6, 1936). This is an action of mandamus seeking to compel the Building Inspector to grant the Realty Co. a permit to erect a store building on his property in a residence district. The evidence shows that the district was being used largely for business in operation prior to the adoption of the zoning ordinance.

And the Court holds the ordinance in this respect to be unreasonable, and grants the mandamus to compel the issuance of the permit, citing the case of *Nectow v. Cambridge*, 277 U. S. 183, as one of its authorities for so doing.

NEW YORK.—*Matter of Rosenbusch v. Keller*, 271 N. Y. 282 (Court of Appeals, May 26, 1936). This is a mandamus proceeding to compel the defendant Keller, Commissioner of Buildings, Borough of Queens, New York City, to cancel the order of revocation of a permit for the erection of a gasoline station.

Plans for erecting the station on the lot in question were filed when it was in an unrestricted district. Thereafter the Zoning Resolution of the city of New York was amended, changing the district from unrestricted to business, thereby prohibiting the use of the premises for a gasoline station. Subsequently a permit was obtained for the erection of a gasoline station on the lot, and work on it was begun, when the permit was revoked.

Rosenbusch then appealed to the Board of Buildings to cancel the order of revocation and when, instead, the Board affirmed it, he brought this mandamus proceeding to have it canceled.

The Zoning Resolution of the city of New York provides that where there are practical difficulties, or unnecessary hardships, in the way of carrying out the strict letter of the provisions of the Resolution, the Board of Appeals of the city shall have power in a specific case to vary any such provision in harmony with its general purpose and interest, so that public health, safety, and general welfare may be secured and substantial justice done. Rosenbusch did not make any application to the Board for such a variance; and the Court decided that, not having done so, he cannot apply for mandamus.

NEW YORK.—*Towers Management Corporation v. Thacher, Commissioner of Buildings, Borough of Brooklyn, City of New York*, 2 N. E. (2d) 273 (Court of Appeals, May 19, 1936). The plaintiff corporation is seeking a permit to erect an electric sign on its hotel in a residential district, claiming that it is permitted in such districts as a use accessory to a hotel use, which is allowed in these districts. In the lower Court the corporation was granted its mandamus. That decision was given in these Notes for January, 1936.

This Court reverses that decision on the ground that an appeal from the Commissioner's ruling against the corporation could, under the terms of the Zoning Resolution of the city, have been taken to the Board of Appeals of the city, and from an adverse decision of that Board (if the decision were adverse) to the regular courts. Instead of taking that course, the corporation has brought this mandamus against the Commissioner to compel him to issue the permit. This it cannot do. Mandamus will not issue where the applicant is provided by law with another remedy, which he does not pursue.

This Court states the reason for the rule of law by quoting the following from the case of *People v. Walsh*, 203 App. Div. 468 at p. 474:

"The procedure of appeal within the line of administrative officials before allowing recourse to the courts, insures the benefit of trained and competent expert opinion and judgment, applied to the facts of each particular case by an experienced tribunal which is not limited to an affirmance or reversal of the action of the superintendent of buildings, but may use its judgment in making such modification in his actions as in its opinion should be made, and to that end is vested with his powers, in order that the spirit of the law shall be observed, public safety secured and substantial justice done.

As the petitioner failed to first exhaust its remedy by appeal to the Board of Appeals, the peremptory order of mandamus was improperly granted, and is reversed and the petition dismissed."

EDITOR'S NOTE.—This group of cases illustrates a rule of procedure of considerable practical importance, now well established. Where the zoning statute or ordinance provides a method of seeking relief, the person considering himself aggrieved must follow that method, exhausting its possibilities before he can resort to the courts for redress. In cases of hardship entitling the applicant to a variation of a valid zoning ordinance, the applicant can, if the facts warrant, obtain his relief by going to the Board of Appeals (if the statute and zoning ordinance provide one), having the further right to appeal from its determinations if against him, by certiorari to the courts; but if the ordinance is arbitrary, unreasonable and therefore void, he is not bound by the terms of the statute and ordinance, but may at once, by mandamus, ask the regular courts to give him relief. See to this effect the New York case of *Matter of Neddo* in our Notes for June, 1936; the New York case of *Matter of Ward* in our Notes for May, 1936, with editor's note; the New Jersey case of *Dornbusch v. Board of Adjustment* in our Notes for December, 1934; the South Carolina case of *Henderson v. City of Greenwood* in our Notes for May, 1934; the New York case of *Dorsey v. Village of Kensington* in our Notes for September, 1931; and the Massachusetts case of *Nectow v. City of Cambridge* in our Notes for June, 1928.

Housing Legislation in Review

ULTIMATE participation of local governments in low-rent housing, through the provision of capital expense, is foreseen by Coleman Woodbury, Executive Director of the National Association of Housing Officials, in a review of housing legislation recently made for the members of his association.

Mr. Woodbury bases his belief on the course of proposed housing legislation which was introduced into the Massachusetts General Court during its recent session. "By all odds the most significant bill," says Mr. Woodbury, was Senate Bill 226, which later was revised as Senate Bill 512. This bill authorized a city or town to borrow on its bond or notes an amount not exceeding one-fifth of one per cent of its assessed valuation, to be used by the local housing authority in leasing or buying a Federal project of its own. Indebtedness incurred under this bill was not to be included within the statutory debt limit.

Senate Bill 226 was reported favorably by the Committee on Municipal Finance, but was referred to the next session of the General Court. Senate Bill 512 was submitted as an amendment to the Senate report with a message from the Governor urging its adoption. In revised form the bill added three conditions to the exercise of the municipal borrowing power: that the Federal Government make a grant to the local authority of not less than 25 per cent of the cost of the project in question; that provision of local funds be made a condition precedent to the Federal grant; and that local funds for any development should not exceed the annual amount by which the cost of public services exceeds taxes, capitalized at 4 per cent.

The bill was introduced upon the petition of the Chairman of the Massachusetts State Housing Board. The Legislature has not acted on the revised bill. Mr. Woodbury says, however, that, within his knowledge, this proposed legislation constitutes the "first serious attempt of any responsible, non-Federal, low-rent housing agency to secure substantial funds for the capital costs of housing developments from non-Federal sources. It probably will be the forerunner of many other bills embodying this purpose."

Americans who are to be in England between August 27 and September 2 are invited to visit the
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which will then be in session at Salisbury. See convention calendar on page 107 of this issue.

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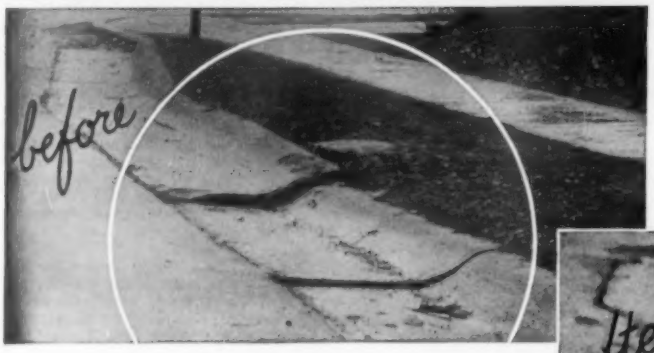

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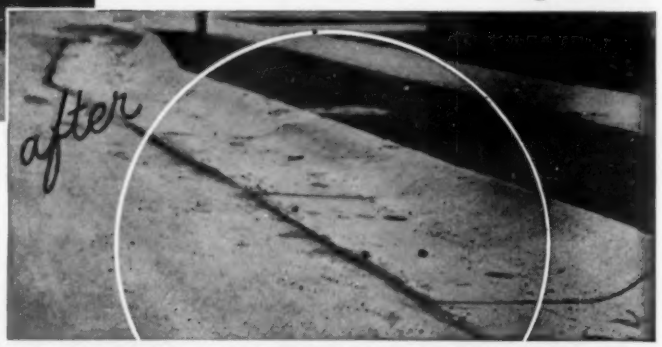

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The City's Legal Rights and Duties

Conducted by A. L. H. STREET, Attorney at Law

Accidents

City held liable for injury to child on playground who fell from swing upon jagged rock (Pennsylvania Superior Court: *Paraska v. City of Scranton*, 184 Atl. 276).

City's failure to enforce one-way traffic ordinance held not to render it liable for collision by automobile with street car permitted to travel in opposite direction (Pennsylvania Supreme Court: *Doughty v. Philadelphia Rapid Transit Co.*, 184 Atl. 93).

Non-misleading mistake as to address of attending physician held not to vitiate statutory notice of claim against city for injuries (Illinois Appellate Court: *Schmidt v. City of Chicago*, 1 N. E. 2, 234).

Statutory notice of time, place and cause of injury may not be waived by city out of court, but city's attorney may bind it by admission in court that required notice was given (Massachusetts Supreme Judicial Court: *Brocklesby v. City of Newton*, 200 N. E. 351).

Audits

Charter held not to authorize mayor to employ accountants to examine departmental accounts to determine city's financial condition with reference to constitutional debt limit, etc. (New York Court of Appeals: *Heaton v. City of Cohoes*, 200 N. E. 795).

Business Regulations

Ordinance requiring commodities sold by weight in truck-load lots, etc., to be weighed by public weigh-master upheld (Illinois Supreme Court: *City of Chicago v. Waters*, 1 N. E. 2d, 396).

Civil Service

Three months' delay by City Engineer in attacking validity of ordinance abolishing his office held to bar attack (New Jersey Supreme Court: *McMichael v. City of South Amboy*, 183 Atl. 477).

Ordinance retiring firemen and policemen at age of 65 upheld (Ohio Court of Appeals, Lucas County: *City of Toledo v. State*, 1 N. E. 2, 171).

Contracts

Building contract held divisible as to work to be performed and therefore payment in full for one job did not constitute overpayment under contract, as affecting the rights of the contractor's surety (Massachusetts Supreme Judicial Court: *Bianchi Bros., Inc., v. Gendron*, 198 N. E. 767).

Construction contract clause exempting city from liability to contractor for delaying "*progress* of work" held not to exempt for delaying *commencement* of work through city's delay in securing necessary site for performance of work (Texas Court of Civil Appeals: *City of Dallas v. Shortall*, 87 S. W. 2d, 844).

Council Proceedings

Adjournment of meeting of aldermen for want of quorum held an adjournment until next regular meeting, invalidating a meeting held by a majority shortly after such adjournment was taken (Rhode Island Supreme Court: *Long v. Fugere*, 184 *Atl.* 316).

Action of new board of commissioners in appointing officers held not vitiated by subsequent unseating of one commissioner whose election was successfully challenged (New Jersey Supreme Court: *Von Nieda v. Bennett*, 184 Atl. 349).

Debt Limits

"Solvent debts" deductible in computing municipal debt limit held to include delinquent taxes promptly collectible and "debts" held to include current expenses payable out of current revenues (Pennsylvania Supreme Court: *Ward v. City of Pittsburgh*, 184 Atl. 240).

Food Regulations

Ordinance providing for inspection of dairies, etc., held valid and not to impose excessive inspection fees (Arkansas Supreme Court: *Coleman v. City of Little Rock*, 88 S. W. 2d, 58).

Requirement that pasteurized milk sold in city be pasteurized therein upheld (California District Court of Appeal: *La Franchi v. City of Santa Rosa*, 52 Pac. 2d, 558).

Intoxicating Liquors

Under Illinois statute municipalities held empowered to prohibit intoxicating liquor sales only when so authorized by electors (Illinois Supreme Court: *City of Fairfield v. Pappas*, 199 N. E. 292).

Licenses

Ordinance imposing license requirements upon "junk dealers" held inapplicable to dealer in scrap iron and steel bought in carload lots and sold to foundries, etc., after being cut to specified sizes (Illinois Appellate Court: *City of Chicago v. Iroquois Steel & Iron Co.*, 1 N. E. 2, 241).

Ordinance requiring resident motorists to be licensed held not void as conflicting with state licensing system (South Carolina Supreme Court: *State (City of Charleston) v. Moseley*, 177 S. E. 156).

Ordinance requiring peddlers, etc., of fruits, etc., to obtain a license and give bond held void as conflicting with statutory exemptions (Georgia Court of Appeals: *Martin v. City of Dublin*, 177 S. E. 279).

Municipal Bonds

City held liable to special assessment bondholders for neglect to use due diligence to collect assessments (Pennsylvania Supreme Court: *Price v. City of Scranton*, 184 Atl. 253).

Municipal Buildings

City held not entitled to use public building to carry on garage business in competition with commercial garages privately owned (Ohio Supreme Court: *City of Cleveland v. Ruple*, 200 N. E. 507).

Municipal Utilities

Statute requiring "public utilities" to secure certificates of convenience and necessity from a state department held inapplicable to municipally owned utilities, authority for acquiring which is given by a self-executing constitutional provision (Arkansas Supreme Court: *Kitchens v. City of Paragould*, 88 S. W. 2d, 843).

Water-plant improvements held properly made out of revenues of plant (Arizona Supreme Court: *Guthrie v. City of Mesa*, 56 Pac. 2d, 655).

Police Measures

Tallahassee ordinance defining disorderly houses held not invalid as permitting conviction on hearsay testimony (Florida Supreme Court: *Atkinson v. Powledge*, 167 So. 4).

Public Utilities

City held powerless to compel removal of electric company's poles, etc., from scene of action by Commerce Commission, which had been invested with title to streets (Illinois Supreme Court: *City of Geneseo v. Illinois Northern Utilities Co.*, 1 N. E. 2d, 392).

Streets

City held liable for injury to abutting property through removal of lateral support, in repairing or regrading street (Kentucky Court of Appeals: *City of Clifton v. Means*, 88 S. W. 2d, 297).

Transportation

State Public Utilities Commission held empowered to permit interurban operation of buses without consent of municipalities (Ohio Supreme Court: *City of Cleveland v. Public Utilities Commission*, 200 N. E. 765).

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Public Health

Public Health Nursing.—By Mary Sewall Gardner, R.N., A.M., Fellow, American Public Health Association; Honorary President, National Organization for Public Health Nursing; Consultant, Providence District Nursing Association. Third edition, revised. The Macmillan Company, New York, 1936. *XII* + 476 *pp.* $3.00 *from* THE AMERICAN CITY.

The tremendous growth and continual readjustment in the field of public health since 1916 has necessitated two complete revisions of "Public Health Nursing" since that first date of publication. "From the little group of women who in 1916 were employed for the most part by small private organizations, the nursing body has grown to a great army of over twenty thousand in this country alone, with more than half of this army working under public auspices."

In this volume Mary Sewall Gardner outlines the progress of the public health nursing movement from the days when the simplest precaution of sterilization was overlooked, up to the present day when we have added the modern science of mental hygiene to the nurse's understanding. Then in discussing the present status of the movement, the principles of public health nursing are set forth, the training needed for this field and opportunities for acquiring this training are indicated, and customary records and statistical methods of this profession are outlined. There is a section describing the working conditions of the public health nurse, and a classification of the services actually rendered by these nurses. A most interesting feature of the book is its analysis of public health nursing under private auspices in contrast to public health nursing under official auspices. In the final section, entitled "Questions of the Day," the controversy over the relative merits of the two set-ups—public vs. private—is set forth.

Housing

*Britain Rebuilding: The Slums and Overcrowding Campaigns.—By B. S. Townroe, M.A., J.P., Hon. A.R.I.B.A. Published by Frederick Muller, Ltd., 29 Great James St., London W.C.*1, *England.* 180 *pp.* 5/-*net.*

"The object of this book is to provide in non-technical language a bird's-eye view of building progress, as well as a popular guide to the 1935 Housing Act. Provided the existing machinery is adapted to suit changing conditions, we may look to Britain's rebuilding continuing unchecked. We may hope, however, that the building industry will cease before long to be dependent on casual labor hired by the hour, and will carry out many, if not all, of the reforms outlined in my final chapter. We may also anticipate with confidence a steady raising of housing standards in this country where new houses were built in 1935 at the rate of a thousand a day—a rate unsurpassed by any other nation in the world in the past or the present."

An especially interesting chapter of Mr. Townroe's book deals with the Overcrowding Act. Minimum standards have been legally set up, and statistics of overcrowding are being tabulated. Some day the problem of enforcement will be close upon the authorities, and a great job will have to be done, the consequence of which should be a strong urge toward better housing in all ranges of accommodation.

Mr. Townroe has a separate chapter on the finance of rehousing and one on building societies. The question of housing finance is always a crucial one, and these chapters are illuminating. A lowering of slum grants is anticipated late in 1937. Mr. Townroe feels that the building societies should compel those to whom they have lent money to keep their property in good condition.

There is a chapter on management which pays tribute to the Dutch system of training tenants and to Octavia Hill. In conclusion, Mr. Townroe expresses some hope of improvement in housing along practical and technical lines and states that "the cost of the workingman's cottage could be still further reduced if the land speculator were more restrained from gaining for his own pocket the increment values created by public demands, and if more capital at low rates of interest could be attracted to invest in weekly rented property on a large scale."

Public Administration

The Public Administration Clearing House (850 E. 58th St., Chicago, Ill.) published in June the third edition of the "Directory of Organizations in the Field of Public Administration," giving brief statements of the name, chief executive officer, membership, finances, secretariat, activities, affiliations, and publications of more than 500 national organizations; in addition listing 1,220 state groups, 79 regional organizations, and 89 Canadian organizations. These are voluntary associations concerned with the business or operation of municipal, county, state or national government, and are made up of public officials, professional and technical men, and private citizens. The purpo-e of the Directory is to present sources of information, assistance and advice to public officials and citizens. XII + 180 pp. $1.00. Louis Brownlow is Director of the Public Administration Clearing House; Robert M. Paige is Editor of the Directory. (Apply to the publishers at the address given above.)

Government and Administration

Bringing up to date the record of Federal-municipal relationships initiated in the volume entitled "Recent Federal-City Relations" (reviewed on page 109 in the April issue of this magazine), a pamphlet of 32 pages under the title, "Cities and the 1936 Congress," has been prepared by the same author, Paul V. Betters, Executive Director, United States Conference of Mayors. Herein are described important matters affecting municipalities considered by Congress during its 1936 session. The material is presented under the classifications of Finance, Work Relief and Public Works, Housing, and a miscellaneous grouping. A number of recent decisions of Federal courts relating to municipal matters are included in the summary. June 25, 1936. (Apply to the author at 730 Jackson Place, N. W., Washington, D. C.)

Planning

The National Resources Committee report on Regional Planning for the St. Louis Region has been issued (June, 1936) as Part II of the proposed series of reports on regional planning activities and progress. The Foreword and the Recommendations of the National Resources Committee are followed by the main body of the report, presented by the St. Louis Regional Planning Commission under the following heads: History and Resources of the Region; Organization of the Region—Present and Future; Principal Physical Improvements of the Region, Existing and Proposed; Program of Public Improvements; Federal and Interstate Problems; Planning Administration. 68 quarto pp. Photographs, maps, charts. 25c (paper cover). (Apply to Superintendent of Documents, Washington, D. C.)

County Planning

J. Franklin Bonner, Secretary of the Monroe County Regional Planning Board, delivered a lecture before the College of Architecture of Cornell University on the general principles of county planning and the particular accomplishments of the Monroe County Regional Planning Board. The Board has divided its procedure into five phases: (A) Mapping the region; (B) making fact-finding surveys; (C) creating the plan; (D) putting the plan into operation; (E) keeping the plan alive, parallel to ever changing social and economic conditions. So far the Board has made progress along the first three phases. Aerial mosaics, assessment maps, soil maps, and school district boundary maps have been prepared. A number of fact-finding surveys have been made covering motor-vehicle traffic, ground water resources, harbor development, and a number of financial subjects such as valuations, tax levies, receipts and disbursements, and indebtedness with bond and note schedules.

With the completion of the mapping program and the analyses of the data from the fact-finding surveys comes the evolution of the plan. Little has been done as yet toward putting any plan into operation, but the Board is doing some thinking along the lines of an educational campaign and on the process of zoning. 20 pp. 10c in stamps. (Copies available from Monroe County Regional Planning Board, 1400 South Ave., Rochester, N. Y.)

Financial Survey

The Consultant Service of the National Municipal League has recently completed a Financial and Administrative Survey of the city of St. Petersburg, Fla., undertaken for the purpose of determining the ability of St. Petersburg to pay debt service. A preliminary section of the report gives the location and general character of St. Petersburg, the population, economic limitations, and territorial over-expansion. The body of the report is concerned with the triangular relationship of St. Petersburg's debt, income possibilities, and expenditures. "Two measures are possible to bring about a situation in which the city can provide in cash for its operating requirements at a levy within the ability of the taxpayers to pay. The first alternative would be for the city to find new sources of revenue to meet its needs, and the second would be a very drastic revision of the present debt structure. In our opinion neither of these measures alone can provide a satisfactory solution of the problem and we therefore recommend that the two be used in combination." 215 pp. (Apply to Consultant Service of the National Municipal League, 309 E. 34th St., New York.)

The Story of PWA in Pictures

Under this title a pictorial brief presents views of projects in various parts of the field of public works stimulated by the Public Works Administration. These include examples of the following: city buildings, schools, hospitals, bridges, homes for the aged, housing projects, sewer systems, flood control, memorial buildings, railroad construction, highways and streets, Army and Navy construction work, etc. 32 pp. (Apply to Public Works Administration, Washington, D. C.)

Other Reports Received

CHICAGO, ILL.—Annual Report, Treasurer, 1935. 32 pp. Send 3c in stamps to Municipal Reference Library, 1005 City Hall.

CHICAGO, ILL.—Annual Report, Board of Supervising Engineers, Chicago Traction, year ended January 31, 1936. X + 128 pp. and folding inserts. Send 10c in stamps to Municipal Reference Library.

GARDEN CITY, N. Y.—Annual Report of the Village, for its financial operations in the year ending February 29, 1936; also the budget for the current fiscal year. 23 pp.

ILLINOIS.—Bureau of Community Planning, University of Illinois, Urbana, Ill.: "The Business Man and His Regional Plan," by A. P. Greensfelder. 12 pp.

JERSEY CITY, N. J.—Annual Report, City Comptroller, 1935. Many photo offset folding pp. giving copies of financial statements.

LOWELL, MASS.—Final Report, Finance Commission, June 30, 1936. 37 pp.

NEW YORK CITY.—Women's City Club: "Twenty Years of Achievement, 1916-1936." 23 pp.

WEST VIRGINIA.—Bureau for Government Research, West Virginia University: Public Affairs Bulletin No. 10—"The Care of Unemployables in West Virginia," by George A. Shipman, Associate Professor of Political Science, West Virginia University, Morgantown, W. Va. 62 pp.

"The Bonded Debt of 283 Cities as at January 1, 1936," by C. R. Rightor, Municipal Service Dept., Dun & Bradstreet, Inc., New York; compilation by Detroit Bureau of Governmental Research. Reprinted from the *National Municipal Review*, June, 1936. 16 pp.

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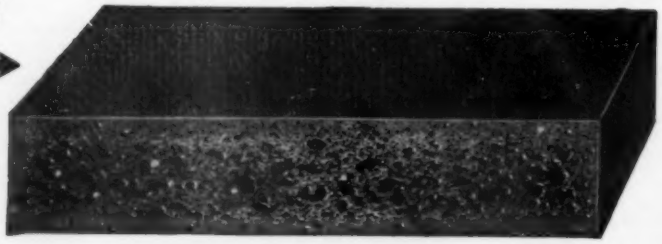

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Conventions -- When and Where

(Figures in parentheses following the name of the convention city indicate the estimated attendance other than local)

AUGUST 2-8.—EVANSTON, ILL.
National Institute for Commercial and Trade Organization Executives. (Northwestern University.) Secretary, John N. Van der Vries, First National Bank Building, Chicago, Ill.

AUGUST 18-20.—DAVENPORT, IOWA. (400)
League of Iowa Municipalities. Annual convention. Secretary-Treasurer, Frank G. Pierce, Marshalltown, Iowa.

AUGUST 19-21.—CLEVELAND, OHIO.
American Water Works Association—Central States Section. Annual meeting. (Hotel Cleveland.) Secretary, H. L. Nelson, 2435 Koppers Building, Pittsburgh, Pa.

AUGUST 25-28.—ANN ARBOR, MICH. (70)
Governmental Research Association. Annual conference. Secretary-Treasurer, Robert M. Paige, 850 East 58th Street, Chicago, Ill.

AUGUST 27-SEPTEMBER 2.—SALISBURY, ENGLAND.
Town and Country Planning School. Hon. Secretaries, W. Loftus Hare and T. F. Thompson, 13 Suffolk Street, Pall Mall, London, S.W.1.

AUGUST 31, WEEK OF.—BUFFALO, N. Y.
Illuminating Engineering Society. Annual convention. (Statler Hotel.) General Secretary, D. W. Atwater, 29 West 39th Street, New York.

AUGUST 31-SEPTEMBER 3.—NEW YORK CITY.
National Municipal Signal Association. Annual convention. (Pennsylvania Hotel.) Secretary, W. H. Harth, Columbia, S. C.

SEPTEMBER 2-4.—BOSTON, MASS. (300)
National Shade Tree Conference. Annual convention. (Hotel Statler.) Secretary-Treasurer, Dr. R. P. White, N. J. Agricultural Experiment Station, New Brunswick, N. J.

SEPTEMBER 2-4.—DIGBY, N. S.
Union of Nova Scotia Municipalities. Annual convention. Secretary, Hon. Arthur Roberts, Bridgewater, N. S.

SEPTEMBER 2-4.—TORONTO, ONT.
Ontario Municipal Association. Annual meeting. Secretary-Treasurer, H. L. Brittain, 137 Wellington Street W., Toronto, Ont.

SEPTEMBER 3-4.—MANDAN, N. DAK.
League of North Dakota Municipalities. Annual convention. Executive Secretary, Myron H. Atkinson, Bismarck, N. Dak.

SEPTEMBER 7-12.—WASHINGTON, D. C.
Third World Power Conference. Executive Secretary, Joel David Wolfsohn, Department of the Interior Building, Washington, D. C.

SEPTEMBER 9-12.—EAGLES MERE, PA. (250)
American Forestry Association. Annual meeting. (Hotel Lakeside.) Executive Secretary, Ovid Butler, 1727 K Street N. W., Washington, D. C.

SEPTEMBER 9-11.—TORONTO, ONT.
Municipal Finance Officers' Association of the United States and Canada. Annual convention. (Royal York Hotel.) Executive Director, Carl H. Chatters, 850 East 58th Street, Chicago, Ill.

SEPTEMBER 10-11.—LANCASTER, PA. (250)
League of Cities of the Third Class in Pennsylvania. Annual convention. Secretary, Herman A. Early, City Hall, Harrisburg, Pa.

SEPTEMBER 14-17.—SANTA MONICA, CALIF.
League of California Municipalities. Annual convention. Secretary, Richard Graves, 223 City Hall, San Francisco, Calif.

SEPTEMBER 14-17.—SANTA MONICA, CALIF.
California Sewage Works Association. Annual convention. Secretary, Fred D. Bowlus, 202 Law Building, Los Angeles, Calif.

SEPTEMBER 14-16.—WASHINGTON, PA. (350)
Pennsylvania State Association of County Commissioners. Annual convention. Secretary, Raymond Sawyer, Court House, Carlisle, Pa.

SEPTEMBER 14-15.—WINCHESTER, VA. (350)
League of Virginia Municipalities. Annual convention. Executive Secretary, Morton L. Wallerstein, Travelers Building, Richmond, Va.

SEPTEMBER 16-17.—PARIS, KY.
The Kentucky Municipal League. Annual convention. Executive Secretary, Carl B. Wachs, Municipal Building, Lexington, Ky.

SEPTEMBER 16-18.—MUSKEGON, MICH. (350)
Michigan Municipal League. Annual meeting. Director, Harold D. Smith, University of Michigan, Ann Arbor, Mich.

SEPTEMBER 17-19.—DANVILLE, ILL. (500)
Illinois Municipal League. Annual convention. Secretary, A. D. McLarty, 500 East Capitol Avenue, Springfield, Ill.

SEPTEMBER 21-23.—CINCINNATI, OHIO. (350)
American Institute of Park Executives and the American Park Society. Annual convention. Executive Secretary, William H. Walker, 2234 Inglewood Place, South Bend, Ind.

SEPTEMBER 21-24.—WHITE SULPHUR SPRINGS, W. VA. (1,000)
American Transit Association and Affiliated Associations. Annual convention. General Secretary, Guy C. Hecker, 292 Madison Avenue, New York.

SEPTEMBER 21-23.—DENVER, COLO.
American Water Works Association—Rocky Mountain Section. Annual meeting. (Cosmopolitan Hotel.) Secretary-Treasurer, B. V. Howe, State Office Building, Denver, Colo.

SEPTEMBER 21-24.—KANSAS CITY, MO. (600)
International Association of Chiefs of Police. Annual convention. Secretary, George Black, Wilmington, Del.

SEPTEMBER 21-22.—FARGO, N. DAK. (150)
North Dakota Water and Sewage Works Conference. Annual convention. Secretary-Treasurer, M. D. Hollis, Bureau of Sanitary Engineering, Bismarck, N. Dak.

SEPTEMBER 22-25.—NEW YORK CITY.
New England Water Works Association. Annual convention. (Pennsylvania Hotel.) Secretary, Frank J. Gifford, Statler Building, Boston, Mass.

SEPTEMBER 23-24.—HURON, S. DAK.
South Dakota Water and Sewage Conference. Secretary, W. W. Towne, State Sanitation Board, Pierre, S. Dak.

SEPTEMBER 24-25.—MANITOWOC, WIS.
League of Wisconsin Municipalities. Annual convention. Secretary, Frederick MacMillin, 114 North Carroll Street, Madison, Wis.

SEPTEMBER 28-30.—TORONTO, ONT.
American Society of Municipal Engineers. International Association of Public Works Officials. Public Works Congress. Executive Director, Frank W. Herring, 850 East 58th Street, Chicago, Ill.

SEPTEMBER 28-OCTOBER 2.—INDIANAPOLIS, IND. (650)
National Tax Association. Annual conference. Secretary, W. G. Query, South Carolina Tax Commission, Columbia, S. C.

OCTOBER 1-2.—COLUMBUS, OHIO. (110)
Ohio Conference on Sewage Treatment. Annual convention. Secretary, B. M. McDill, Department of Health, Columbus, Ohio.

OCTOBER 3.—WELLESLEY, MASS. (100)
Massachusetts Federation of Planning Boards. Annual conference. Secretary, Henry B. Alvord, 316 Huntington Avenue, Boston, Mass.

OCTOBER 4-6.—ATLANTIC CITY, N. J. (150)
Institute of Traffic Engineers. Annual meeting. Secretary-Treasurer, Harold F. Hammond, 1 Park Avenue, New York.

OCTOBER 5-9.—ATLANTIC CITY, N. J. (6,000)
National Safety Council. Annual Safety Congress and Exposition. Managing Director, W. H. Cameron, 20 North Wacker Drive, Chicago, Ill.

OCTOBER 7-9.—NORTH PLATTE, NEBR. (500)
League of Nebraska Municipalities. Annual meeting. Secretary-Treasurer, C. E. Beals, 204 Brownell Building, Lincoln, Nebr.

OCTOBER 7-8.—MILWAUKEE, WIS. (300)
Wisconsin Chiefs of Police Association. Annual meeting. Secretary, R. H. McCarty, Kaukauna.

OCTOBER 9-10.—GENEVA, N. Y. (125)
New York State Sewage Works Association. Fall meeting. Secretary-Treasurer, A. S. Bedell, State Department of Health, Albany, N. Y.

OCTOBER 9-10.—TYLER, TEXAS. (300)
League of Texas Municipalities. Annual meeting. Executive Secretary, E. E. McAdams, 2220 Guadalupe Street, Austin, Texas.

OCTOBER 12-15.—FORT SMITH, ARK.
American Water Works Association—Southwest Section. Annual convention. (Hotel Goldman.) Secretary-Treasurer, Lewis A. Quigley, Fort Worth, Texas.

OCTOBER 14-16.—ATLANTIC CITY, N. J.
Pennsylvania Water Works Association. Annual convention. (Haddon Hall.) Secretary, Dr. F. Herbert Snow, Telegraph Building, Harrisburg.

OCTOBER 15-17.—CHICAGO, ILL. (100)
American Municipal Association. Annual meeting. Executive Secretary, Clifford W. Ham, 850 East 58th Street, Chicago, Ill.

OCTOBER 15-17.—SPRINGFIELD, ILL.
The Public Ownership League of America. Biennial meeting. (Abraham Lincoln Hotel.) Secretary, Carl D. Thompson, 127 North Dearborn Street, Chicago, Ill.

OCTOBER 19-21.—RICHMOND, VA. (200)
International City Managers' Association. Annual convention. Executive Director, Clarence E. Ridley, 850 East 58th Street, Chicago, Ill.

OCTOBER 19-20.—NEW ORLEANS, LA. (50)
Conference of State Sanitary Engineers. Annual meeting. Secretary-Treasurer, R. E. Tarbett, U. S. Public Health Service, Washington, D. C.

OCTOBER 20-23.—NEW ORLEANS, LA.
American Public Health Association. Annual meeting. Executive Secretary, Dr. Reginald M. Atwater, 50 West 50th Street, New York.

OCTOBER 22-23.—SARATOGA SPRINGS, N. Y.
American Water Works Association—New York Section. Fall meeting. Secretary, R. K. Blanchard, Care Neptune Meter Co., 50 East 42d Street, New York.

OCTOBER 22-23.—LITTLE ROCK, ARK. (300)
Arkansas Municipal League. Annual convention. Acting Director, Spencer D. Albright, University of Arkansas, Fayetteville, Ark.

OCTOBER 23-24.—ATLANTIC CITY, N. J.
American Water Works Association—New Jersey Section. Joint meeting with New Jersey Water Works Association and the South Jersey Association of Water Superintendents. (Hotel Ambassador.) Secretary of the Section, P. S. Wilson, 325 Washington Street, Glen Ridge, N. J.

OCTOBER 26-28.—KANSAS CITY, MO.
American Water Works Association—Missouri Valley Section. Annual meeting. Secretary, Earl L. Waterman, University of Iowa, Iowa City, Iowa.

OCTOBER 26-28.—CHARLOTTE, N. C.
American Water Works Association—North Carolina Section. Annual convention. (Hotel Charlotte.) Secretary, M. F. Trice, State Board of Health, Raleigh, N. C.

OCTOBER 29-31.—CHARLOTTESVILLE, VA.
American Water Works Association—Virginia Section. Annual conference. Secretary, H. W. Snidow, Department of Health, Richmond, Va.

NOVEMBER 6-7.—MINNEAPOLIS, MINN.
American Water Works Association—Minnesota Section. Annual meeting. (West Hotel.) Secretary-Treasurer, Ronald M. Finch, Wallace & Tiernan Co., Inc., 414 Flour Exchange, Minneapolis, Minn.

NOVEMBER 8-11.—OMAHA, NEBR.
National Association of Commercial Organization Secretaries. Annual convention. Secretary-Treasurer, R. W. Nelson, Chamber of Commerce, Cincinnati, Ohio.

NOVEMBER 16-17.—TOLEDO, OHIO.
National Municipal League. Annual conference on government. Secretary, Howard P. Jones, 309 East 34th Street, New York.

DECEMBER 7-10.—SAN FRANCISCO, CALIF. (375)
American Association of State Highway Officials. Annual convention. Executive Secretary, W. C. Markham, 1220 National Press Building, Washington, D. C.

JANUARY 11, 1937, WEEK OF.—Place to be selected.
American Road Builders' Association. Annual convention and Exhibit. Secretary, Chas. M. Upham, National Press Building, Washington, D. C.

STREET-LIGHTING equipment, like the automobile, sometimes needs renewal parts. With these parts, and proper maintenance, it will go on, almost indefinitely, doing the job it was designed for. Without them, it fails.

For Continued Satisfaction

Glassware is an important and very conspicuous part of a street-lighting installation. For initial performance and appearance it is important to buy good glassware. But for continued satisfaction it is supremely necessary to buy glassware which can be matched in replacement—which can always be supplied promptly, and in small orders.

The Value of Reputation

There are several reputable manufacturers of glassware. They make satisfactory products which pass rigid inspections. Their products are standard. They have been in business for years. Because they refuse to sell below cost, because they are ready and anxious to please their customers by filling small orders and making special designs, they will be in business for years to come. They are not static organizations, not copiers—they are constantly striving, through research and engineering, to improve their products, to give their customers more and more for their money. Their products will never become "orphans"—never be products whose makers have gone out of business.

Don't Buy "Orphans"

We, of course, sincerely believe that Gleason-Tiebout street-lighting glassware is the best—that, with its rippled finish, its uniformity, its high strength, and its many refinements, it is a better buy than any other make. We know, though, that there are other good companies which make excellent glassware. For your own sake, look back of price to the reputation and record of the manufacturer. Buy your products from one of these leaders. Don't take the chance of buying "orphans."

Gleason-Tiebout has been making street-lighting glassware for 30 years. All of it passes the rigid tests and specifications of General Electric engineers.

You pay for good street lighting whether you have it or not . . . with inadequate lighting, you pay in accidents, crime, and deaths.

GLEASON-TIEBOUT GLASS COMPANY

99 COMMERCIAL STREET, BROOKLYN, N. Y.

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During August we hope you will remember to mention THE AMERICAN CITY

News and Illustrations

Items of Interest to City, Town and County Officials, and Others Concerned with the Economical Construction and Efficient Operation of Public Improvement Undertakings

FRED L. RIGGIN, PRESIDENT, MUELLER BRASS CO.

New President of Mueller Brass Co.

At a recent meeting of the Board of Directors of the Mueller Brass Co., Port Huron, Mich., Oscar B. Mueller, who has been head of the company since its establishment in 1917, tendered his resignation, and Fred L. Riggin, who has been closely associated with Mr. Mueller since the establishment of the company, was elected President to succeed him.

Mr. Riggin started with the original Mueller Company in Decatur, Ill., 32 years ago. In 1912 he came to Sarnia with O. B. Mueller and established the Sarnia branch of the Decatur Mueller factory. In 1917, when the Mueller Brass Co. was established, he settled in Port Huron. For many years Mr. Riggin was in charge of the Mueller Brass Co.'s sales and some time ago was chosen as Executive Vice-President of the concern.

As manufacturers of brass goods, the Mueller name has for many years been favorably known all over the world, and both Oscar Mueller and Fred Riggin have been recognized as leading figures in brass manufacturing circles.

Firestone to Sell Gar Wood Product

The Firestone Tire and Rubber Co., Auto Supply Department, Akron, Ohio, recently purchased several thousand Gar Wood Aroflo steam units, made by Gar Wood Industries, Inc., Detroit, Mich., for car heaters. This new Gar Wood product is adaptable to all present Ford V-8 cars and those manufactured since 1932. The steam unit when coupled with any new or used hot water heater produces more and quicker heat at any car speed, it is said. Firestone will sell the unit nationally through its super-service stations.

New President of Universal Atlas Cement Co.

Blaine S. Smith, who has just resigned as President of the Pennsylvania-Dixie Cement Corporation, New York City, will become President of the Universal Atlas Cement Co., Chicago, Ill., September 1, 1936. Mr. Smith succeeds B. F. Affleck, who has announced his retirement as President of the Universal Atlas Cement Co., under the Steel Corporation's pension plan, to devote himself to his private interests. Mr. Smith is widely known in the cement industry and in the construction field, having been President of the Portland Cement Association during 1925 and 1926.

A Traveling Water-Works Laboratory

The most recent development in the field of water purification is a traveling water-works laboratory developed by Fred E. Stuart of the Activated Alum Corporation, of New York City. This unit consists of a 20-foot Curtiss-Aero-Car and contains the latest type equipment available for the economical and efficient operation of a water plant, and also some especially designed for research work. It also carries samples of coagulants, including regular alum, activated alum, sodium aluminate, ferrous sulphate, ferric sulphate and ferric chloride.

Aside from coagulants, the unit will contain all types of activated carbons, both powdered and granular, and odor control apparatus to determine the efficiency of each. One of the features of this laboratory is a stirring machine which is silent in operation and has an unusual range of control, varying from 2 rpm to 110 rpm. The speed of the stirring blades is under control at all times because a tachometer reads direct in rpm's of the stirring arms. Rapid determination of floc characteristics can be made because of the design in placing and removing stirring arms without breaking of the floc already formed.

There is also a newly designed Air-Mixer, which is to be used in comparing mechanical mixing with air mixing in the treatment of trade wastes and domestic sewage. Included in the routine laboratory apparatus are the latest type Hellige Aqua Tester and the Hellige Turbidimeter. The apparatus to determine how much free alum is left after treatment is the Baldwin residual alumina set. Included also is a most complete taste and odor control section. This is designed to determine the effectiveness of coagulation on taste removal and the efficiency of different type activated carbons. All the odor detection equipment is of Pyrex. Some of the interior features are a porcelain sink, lavatory, complete galley, refrigerator, 6- and 110-volt lighting system, built-in radio, stenographic type typewriter desk, built-in library, and two retractable Pullman type berths.

Among those who contributed their cooperation and aid in the design and construction of this traveling laboratory are Smith, Bingham and Baldwin, of the Division of Water Supply, Richmond, Va.; R. W. Fitzgerald, Chief Chemist, Division of Water Supply, Norfolk, Va.; Ed. S. Hopkins, Chief Chemist, Division of Water Supply, Baltimore, Md.; E. L. Filby, Chief Engineer; Black & Veatch, Consulting Engineers, Kansas City, Mo.; Phipps & Bird, Richmond, Va.; Wallace & Tiernan, Newark, N. J.; Curtiss Aero-Car Co., Miami, Fla.; and W. A. Taylor Co., Baltimore, Md.

THE ACTIVATED ALUM CORPORATION TRAVELING WATER-WORKS LABORATORY

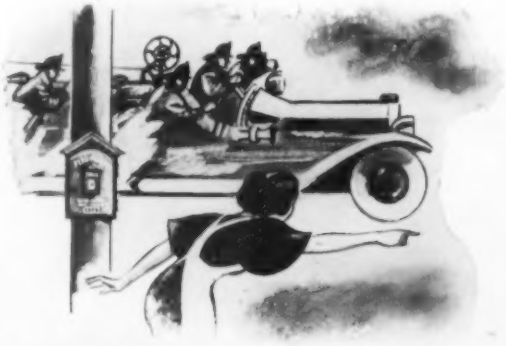
Combat Accidents, Crime, Fire, with this 4 point

SAFETY PROGRAM

People are aroused by today's appalling losses of life and property due to *preventable* traffic accidents, crime and fire. They're demanding SAFETY!...Give them the protection of *adequate, modern* public safety equipment. Its cost is only a tiny fraction of the terrible costs it prevents . . . Graybar can help you with unbiased advice . . . dependable equipment. Write us for full information.

1. Better Street Lighting . . . Despite greatly reduced traffic, 40% of all accidents occur at night. Crime flourishes in the dark . . . That's why better street lighting pays for itself. Call on Graybar's lighting specialists to help you with details . . . choice of equipment.

2. Modern Traffic Control . . . Meet perplexing traffic problems with *up-to-date* traffic control equipment. Saves time—helps prevent accidents. Steadily increasing *future* traffic must be considered. Why not let Graybar's experts offer suggestions?



3. Efficient Fire-Alarm Systems . . . Tremendous advances in fire-alarm equipment have been made in recent years. A *complete,* interesting booklet describing present-day equipment is available to you. You'll want to have it. Write us—ask for it.

4. Police Radio . . . More and more communities are turning to Police Radio to speed up the long arm of the law. Our experience is at your disposal—an experience based on helping scores of other cities solve their problems. Write for booklets—data.

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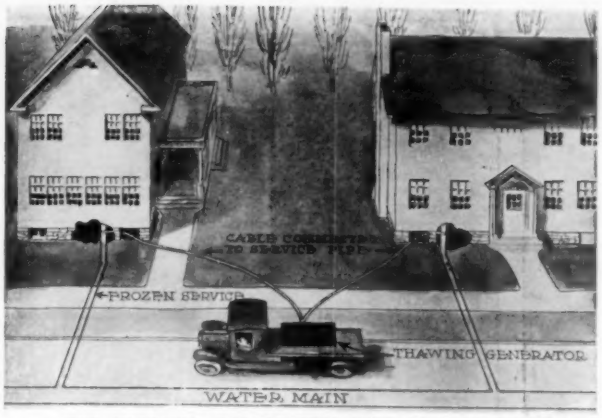
OFFICES IN 79 PRINCIPAL CITIES. EXECUTIVE OFFICES: GRAYBAR BUILDING, NEW YORK, N. Y.

When you write for that catalog, kindly mention THE AMERICAN CITY



THE ENGESSER GAS-ELECTRIC UNIT FOR THAWING SERVICE PIPES

Gas-Electric Equipment for Thawing Service Pipes

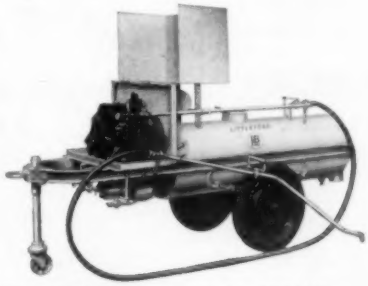
Backed by twelve years of experience in building pipe-thawing machines, Engesser Electric Manufacturing Co., Inc., Watertown, N. Y., has developed a new portable unit with a Ford V-8 motor for power and equipped with an electric starter, generator and storage battery. The main generator is of the alternating current type, especially designed and constructed to give it the proper characteristics for this class of service. It has a capacity of 600 amperes at a voltage ranging from 5 to 60, giving a main output of 36 kw or 48 hp.

The engine and generator are direct-connected by a flexible coupling assembled on a welded steel base, mounted on three wheels. This is for convenience in loading into a truck, but primarily to give three-point suspension, eliminating any binding of bearings when the machine is not standing level.

Simplicity of operation is one of the features of the machine, for any two of the regular water department men familiar with the operation of a truck can easily attend to the operation of the machine and the thawing of the pipe. The low voltage, which is never in excess of 100 volts, eliminates all possibility of dangerous electric shock. A run last winter thawed out 300 feet of 8-inch cast iron main in three hours' running time after two days had been spent with steam and twenty-four hours continuous running with a welding machine.

New Streamlined Emulsion Sprayers

A new idea has been built into the new 1936 line of emulsion sprayers made by Littleford Bros., 500 East Pearl Street, Cincinnati, Ohio, combining safety, operating efficiency and ease of handling. A channel iron running gear is used on both the No. 93-AM and the No. 93-OB, and the main supply tanks are made longer and of smaller diameter. This adds to the streamlined effect and makes a stronger unit throughout. Pneumatic-tired Timken roller bearing wheels are semi-elliptic spring mounted on the chassis. The pressed steel hood over the air-cooled motor and compressor opens up when the unit is being used, to give complete ventilation and free access to all



THE LITTLEFORD NO. 93-OB SPRAYER

parts. When closed, the hood is securely locked by one latch.

A new and exclusive safety feature is built into the No. 93-OB unit, which handles cut-back where heat is required. A simple but positive arrangement makes it impossible to operate the oil burner while pressure is being applied to the main tank and by the same device, it is impossible to apply pressure to the tank while the oil burner is burning.

Both No. 93-OB and No. 93-AM fill themselves from the commercial drum, and both are made in one- and two-drum sizes. A strainer in the filling manhole and a siphon pipe draw-off prevent clogging of the lines. By simply turning on one valve, the operator can utilize the pressure in the main tank to blow out lines, spray hose and nozzle. The heat flue in the No. 93-OB is located at the extreme bottom of the supply tank. All fuel piping is of streamlined copper tubing and fittings. The No. 93-AM is the same unit as the No. 93-OB with the exception of burner, heat flue and fuel tank and the necessary valves and piping.

A Streamlined Sprayer

The Giant Triplex streamlined sprayer is the latest addition to the line of sprayers made by the Hardie Manufacturing Co., Hudson, Mich. These sprayers are built in five sizes with either wood or steel tanks and mounted on either all-steel or Firestone or Goodyear rubber tires. They are available in sizes delivering 15, 20, 30, 40 or 50 gallons per minute at 300 to 800 pounds pressure.

The dust-proof hood has doors on each side which open up the same as the hood of an automobile, and for greater convenience in repairing or removing the pump or engine, the hood is also hinged at the rear and can be folded back over the tank. Since the engine and pump are entirely enclosed, no dust or dirt can reach them.

The frame is of heavy steel and separate from the tank, thus relieving the tank from all strain and side twist, which is very important, especially where steel tanks are used, for without this principle the seams in the tank are apt to open up. A convenient steel platform is placed on the rear of the outfits, with guard-rails which lessen the labor of spraying. The streamlined design leaves no protecting parts to catch the branches of the trees or damage the trees or shrubs in close plantations. The wood tanks and the steel tanks used on these outfits are exactly the same size on the outside, making them interchangeable. A bulletin entitled "Hardie Shade Tree Sprayers" contains full details on this and other types.

Engineers Move Offices

Fay, Spofford & Thorndike, consulting engineers, of Boston, Mass., have announced the removal of their offices from 44 School Street to 11 Beacon Street.

THE GIANT TRIPLEX SPRAYER, EQUIPPED WITH FIRESTONE TIRES

SYNTRON

DRY CHEMICAL FEEDERS

Vibra-Flow type with Remote Electric Volume Control. No motors, gears, cams, slides, scrapers or wearing parts.

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GRAVIMETRIC FEEDERS

Providing Feed by Actual Weight.
Also available with Feed Rate Indicators and Recorders.

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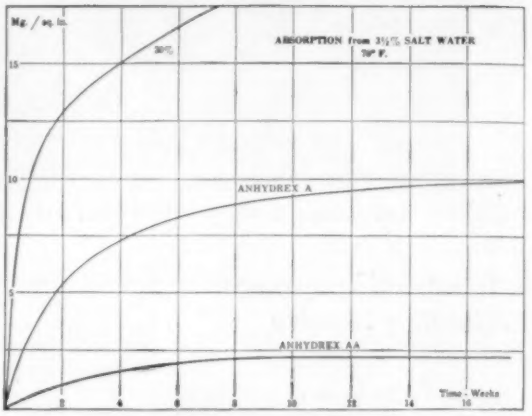
RUBBER INSULATION
FOR WIRES AND CABLES



If rubber insulation that does not absorb water is of interest to you, ask for new booklet "ANHYDREX Rubber Insulation."

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HAZARD ARMORTITE CABLE
(Non-Metallic Armored)

Underground lighting systems add greatly to the appearance of suburban streets. Hazard Armortite Cable is ideal for this purpose. Armortite is buried directly in the ground without conduits as it is protected against moisture and mechanical injury by plastic sealing compound, asphalted jute coverings and non-metallic tape armor. These materials are not affected by burial in soil. Investigate Armortite before buying any underground cable.

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HAZARD INSULATED WIRE WORKS
Division Of THE OKONITE COMPANY
WORKS: WILKES-BARRE, PA.

THE NEW PITTSBURGH EQUITABLE METER CATALOG

New Catalog on Meters

A combined catalog of the Pittsburgh Equitable Meter Co. and its subsidiary, the Merco Nordstrom Valve Co., Pittsburgh, Pa., recently issued, describes EMCO gas meters, Pittsburgh water meters and Nordstrom lubricated plug-valves for use in sewage-disposal plants. EMCO sewer gas meters are used for such services as measuring the entire gas flow from each digestion tank, to measure the gas used by burner or gas engine, and to measure the gas wasted.

Pittsburgh hot and cold water meters are manufactured in disc, current and compound types for measuring heated water circulating through digestion tanks, as well as all cold water piped for the various uses throughout the plant. Nordstrom lubricated plug-valves are particularly suited for sewage-disposal installations, owing to their high resistance to the corrosive and abrasive character of the substances handled.

Copies of this Bulletin No. 1031 may be secured by writing the Pittsburgh Equitable Meter Co., 400 North Lexington Street, Pittsburgh, Pa.

New Officers for Simplex Wire & Cable Co.

Simplex Wire & Cable Co., Cambridge A, Boston, Mass., has announced the election of the following new officers: President and Treasurer, Everett Morss, Jr.; Vice-President and General Manager, Charles R. Boggs; Vice-President, Clerk and Secretary, Philip R. Morss; and Vice-President and Assistant Treasurer, J. Arthur Gibson. William S. Davis will continue as Sales Manager, with George L. Roberts as Assistant Sales Manager.

New Diesel Fuel Tractors

Two new controlled ignition diesel fuel tractors, known as Models KO and LO, have recently been announced by the Allis-Chalmers Manufacturing Co., Milwaukee, Wis. According to Allis-Chalmers engineers, features and improvements have been included in the new models that will enable users to get a maximum of diesel fuel economy combined with a simplicity, smoothness and balance. The new type of fuel pump, a simplified injection system and new cylinder heads are a few of the improvements on the new models. The new pump is simple in construction and easily accessible for inspection and adjustment, and requires no costly special tools.

Controlled ignition is another feature of these diesel fuel tractors. Firing takes place at exactly the proper point, assuring complete and efficient combustion and eliminating power wasting preignition. The Model KO develops 49 horsepower and the Model LO develops 79 horsepower.

New Traffic Signals

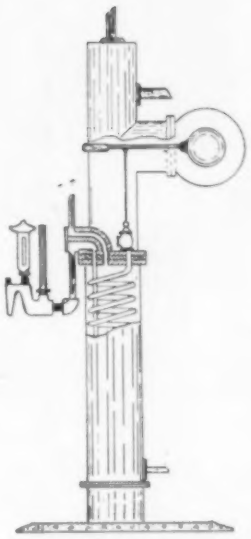
A new type of traffic signal recently brought out by the Reynolds Electric Co., 2650 West Congress Street, Chicago, Ill., provides an efficient and economical system having advantages of a metropolitan system at only a fraction of the cost. The signals are extremely flexible, being built in units which are applicable to almost any type of installation.

The heart of the system is a compact induction disc motor silver contact control unit. The signal lights are of new design, employing RECO color hoods. It is claimed that these new reflectors give a full, round ball of color of adequate brilliancy in the daytime as well as at night.

Expensive special standards are replaced with standard pipe fittings which may be purchased locally. Special illustrated literature showing the extreme flexibility of this new system may be secured by writing the manufacturer.

A Device for Controlling Boiler Water Concentration

The Mosinee Boiler Blow Down, which has been developed for controlling boiler water impurities by keeping the concentration sufficiently low with minimum blow down and minimum heat loss, has been announced by the Automatic Primer Co., 111 West Washington Street, Chicago, Ill. This unit accomplishes this purpose by continually blowing down a calculated quantity of water and utilizing the heat of this blow down by flashing a portion of it into steam and preheating of make-up water.



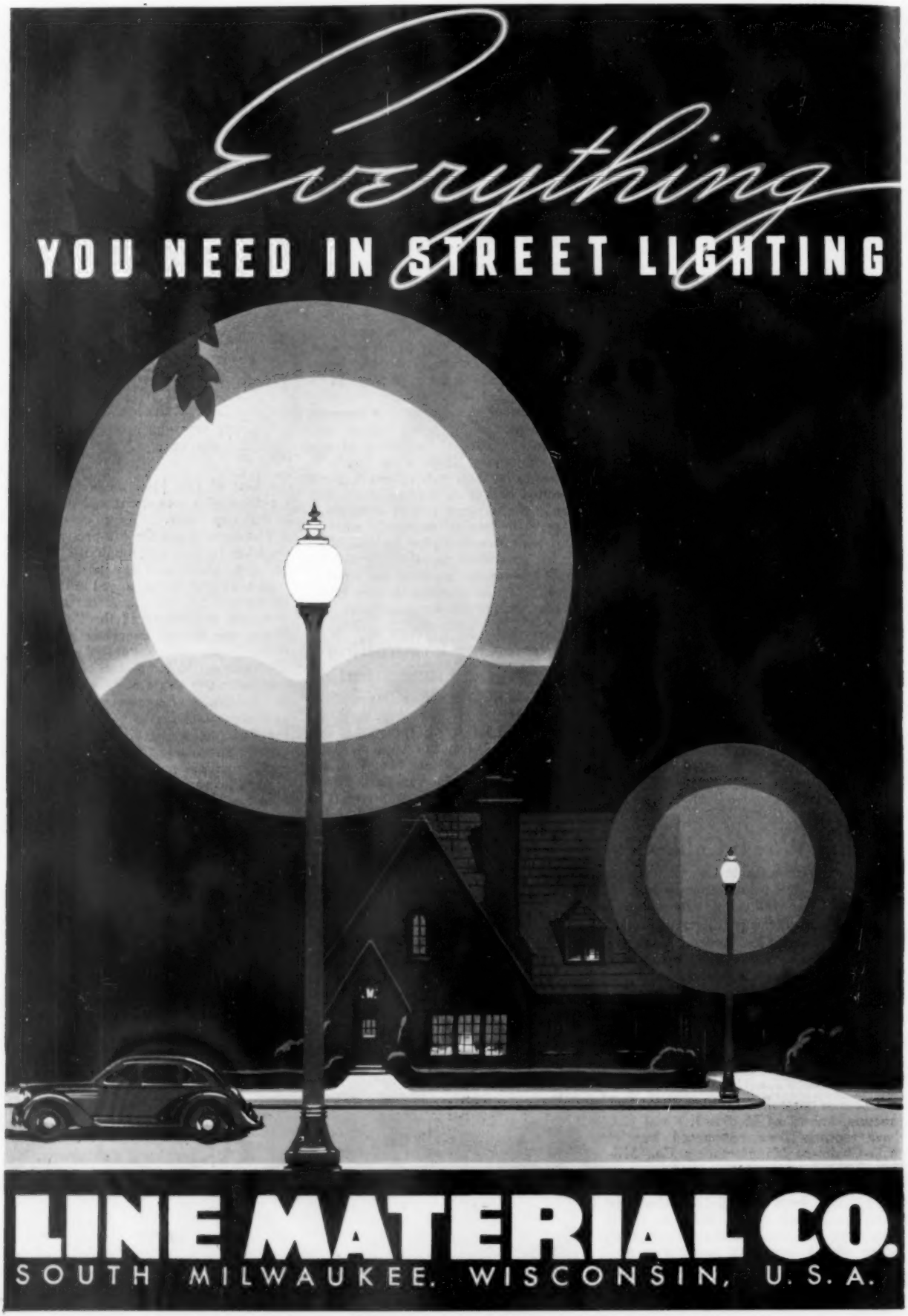
THE MOSINEE CONTINUOUS BOILER BLOW DOWN

The water from the low-pressure flash chamber is passed through the heat exchanger, where a large portion of its remaining heat is exchanged to the make-up water.

By the application of the Boiler Blow Down, the desired concentration of the boiler water is constantly maintained. The correct boiler water concentration eliminates wet steam and scale and minimizes deposits of suspended matter. The unit recovers from 85 to 90 per cent of the heat units contained in the blow down water above the amount contained in an equal amount of make-up water.

An illustrated bulletin describing the Mosinee Continuous Boiler Blow Down may be secured by writing the Automatic Primer Co. direct and mentioning THE AMERICAN CITY.

THE ALLIS-CHALMERS MODEL LO TRACTOR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New Jersey Water-Works Meeting

A meeting of all New Jersey water-works men, under the auspices of and jointly arranged by the New Jersey Section, American Water Works Association, the New Jersey Water Works Association and the South Jersey Association of Water Superintendents, will be held on Friday and Saturday, October 23 and 24, 1936, at the Hotel Ambassador in Atlantic City, N. J.

THE NEW JENKINS VALVE FOR COPPER PIPING

New Valves for Copper Piping

Jenkins Bros., 80 White Street, New York, has announced a complete line of Jenkins Solder-End valves for 150 pounds service on copper lines. In these valves is found the same service quality which Jenkins valves have provided on threaded installations for more than seventy years. In every detail, except the ends, these valves are identical with the standard Jenkins valves.

The glove, angle and lift check patterns have the same combination of design and construction as the Jenkins renewable composition disc valves. In the regrinding swing check will be found the Jenkins seating arrangement, which permits more re-grinding without injury to the valve.

Stabilization as Base Course for Bituminous Surface

C. D. Warner, Superintendent of Maintenance of Unpaved Streets of the city of Detroit, Mich., makes some interesting comments in a recent letter in connection wtih stabilization of 50 miles of Detroit streets to be used for base course for a thin bituminous surface (as reported by the Calcium Chloride Association).

"The reason we are using stabilized mix is to obtain quick compaction and eliminate excessive maintenance, such as is necessary on the macadam type; to minimize the dust nuisance so far as possible; and, by reason of getting quick compaction, to place the bituminous surface on the base at an early date. The macadam type of construction would necessitate considerably more equipment than is at present being used; a very long period to secure compactions; and the use of considerable calcium chloride or other means of quickly laying dust, which is of tremendous importance in a municipality.

"The trend all over the country by highway engineers has been to abandon macadam construction and go to stabilized base. The reasons are obvious: fast-moving traffic whips out the fines in a macadam type road, resulting in the development of loose cover and chuck-holes to an aggravated degree in dry weather. This results in the necessity of considerable maintenance work to keep the roads smooth under the present type of traffic, to say nothing of the dust nuisance.

"The macadam road was developed for the horse-and-buggy days of slow-moving traffic. I believe the results shown to date with stabilized material for the base reveal the superiority of this type over the macadam construction."

THE TAX-O-METER PARKING MACHINE

Parking Meters Gain in Popularity

The downtown parking situation in communities having a centralized shopping and business section has long been one of the most perplexing problems of the police, merchants and motorists. Various methods have been experimented with to solve this ever-increasing problem, but at the present time the use of parking meters is receiving the most serious consideration by traffic experts everywhere as the answer to their worries. The illustration herewith shows a new type of these revenue-making and parking-control machines known as the Tax-O-Meter and manufactured by Parking Tax-O-Meter, Security Building, Long Beach, Calif.

The operation of the machine is simple. All streets in congested areas are marked off in 20-foot spaces with a Tax-O-Meter opposite each space. The motorist, when parked, places a 5-cent piece in the slot and pulls a lever, and the machine begins to register the time of parking. Time elapsed is clearly shown by a bright green shutter on the top of the machine and is visible for some distance.

The benefits of the machine are many. It will give a more efficient supervision of traffic regulations, will eliminate the old-fashioned methods of checking cars, of which tire-chalking is the most common, and will give traffic patrolmen more time to perform other duties, often more important to civic welfare. It is destined to give merchants the opportunity to profit by having available parking facilities for customers and it will do much to eliminate smashed fenders.

ASPLUND STREET, BARBERTON, OHIO, STABILIZED THREE YEARS AGO

Better today than ever, with practically no maintenance except occasional light treatment with calcium chloride to keep it moisture-bound and dustless

DAYLIGHT AFTER DARK

with Combination MERCURY-MAZDA Street Lighting

ABOVE . . . a Westinghouse test installation on a busy intersection. LEFT . . . the Westinghouse Paragon Sr. Luminaire equipped with Mercury-Mazda illumination. BELOW . . . arrangement of 400-watt High Intensity Mercury Lamp and two Mazda Lamps. Similar combinations are available in other Westinghouse overhead and ornamental equipment.

NOW WESTINGHOUSE LUMINAIRES WITH COMBINATION EQUIPMENT

Again there's "something new under the sun." This time a worthy substitute for sunlight on the White Way. Westinghouse has now perfected equipment that makes it practical to take advantage of the revolutionary new High Intensity Mercury Lamp for street lighting systems.

Here's a lamp that provides 2 to 3 times more light than present-day light sources — which means 2 to 3 times more light for the money! Its rated life is 2,000 hours. It provides a penetrating light which, when combined with the Mazda, results in a distinctive illumination approaching daylight qualities.

White Ways can now be made *safer* ways and brighter ways through this new Westinghouse Mercury-Mazda equipment. Moreover, this better light actually costs less! Get full particulars now from your Westinghouse Distributor, or write Westinghouse Electric & Manufacturing Company, Lighting Division, Edgewater Park, Cleveland, Ohio.

WESTINGHOUSE 1886 W 1936 GOLDEN JUBILEE

WHEN YOU THINK OF *Lighting* THINK OF

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Outdoor Lighting

A Section of THE AMERICAN CITY
Devoted to the Lighting of Streets, Highways, Bridges, Airports, Athletic Fields and Parks, and the Floodlighting of Public Buildings

Lighting New York's New Triborough Bridge

TWO weeks before the great Triborough Bridge in New York City opened, on July 11, very few of the 477 standards and 825 luminaires had been erected. But in spite of this, a large proportion of them were in place on time for the opening.

The bridge proper is 3.32 miles long: 2 miles from 28th Street in Long Island City to the Junction with the Bronx and Manhattan branches; 0.55 mile over Bronx Kills and Bronx approach; 0.77 mile on the arm to Second Avenue and 125th Street, Manhattan. Adding the east ramp from the Manhattan terminus to 122d Street and East River Drive gives the total bridge structure a length of 3½ miles. There are 14 miles of connecting highways. The entire project includes 10 miles of lighting.

Contract for the entire lighting system of the bridge proper was let to Brown Electric Co. for $562,000. The standards and luminaires were furnished by Line Material Co. Union Metal Manufacturing Co. made the standards and cross-arms.

Center Lighting Where Possible

The principal portion of the bridge structure carries two 4-lane roadways, each 43½ feet wide with a separation curb 3 feet 8½ inches wide on which the 2-arm lighting standards are placed. Thus the lighting, wherever feasible, is from the center of the structure.

The standards and cross-arms are of heavy gage copper bearing steel, with cast-iron ornamental base slipped over the shaft. The shaft section of the standard consists of a steel tube formed from a plate and cold-rolled to a sort of octagonal shape and arc-welded longitudinally. The cross-arms are formed in the same fashion and shape. The luminaire, designed by the Triborough Bridge Authority, projects the illumination in a 75-degree cone of light in accordance with the ratio between roadway width and mounting height, to reach the outer edges of the fascia or railing. This is accomplished by Alzak aluminum reflectors fastened inside the diamond mesh glass globe. The globe is bolted to a cast-aluminum housing, making the luminaire air-tight and dust-proof, minimizing maintenance expense. The standard arms are each 4 feet long, and one of the important features of this luminaire is the method by which it is attached to the standard arm. By means of an aluminum casing it is coordinated with the arm instead of dangling from it. Each bridge light is equipped with or hung from a spring shock absorber between arm and fixture, which reduces vibration and therefore breakage of the 3,000-hour filament. Breakage from expansion of glass or metal is reduced by a resilient gasket. To clean or replace lamp, two thumb nuts remove globe from housing. An adjustable socket permits raising or lowering the light center for different sized lamps.

The lamps are mounted 21 feet to filament center and spaced 80 to 120 feet apart, depending on local conditions, averaging 100 feet spacing. The branch to Manhattan carries two three-lane roadways with no center curb, and here one-arm standards are placed on the side, and generally on one side only.

The sidewalk light units are mounted in the fascia or outside railing, and are 2 feet 9 inches high. The inner edge of the sidewalk is separated from the roadway by a barricade.

Two Toll Plazas

There are two sets of toll booths (toll 25 cents) located on the junction of the three branches, known respectively as the East and West toll booths. The East toll booths take traffic from Bronx to Queens and from Queens to Bronx. Here the lights are on a center island and the spacing between them is halved, to about 50 feet. As the roadways approach this plaza they widen from their usual 43½ feet to 68 feet 7¾ inches. This center lighting is reinforced by lamps from one-arm standards placed along the sides and spaced more closely, thus providing three or four times as much light in the toll area as on the traffic lanes.

The West toll booths take traffic to and from Manhattan and to and from Randall's Island. Here there is no center curb, so all the standards are placed on the sides at extreme edges. As this light alone would be inadequate for a width of 250 feet, two floodlight towers are installed, one at each end of the line of toll booths at each side of the plaza. Each tower carries eight 1,000-watt floodlights mounted vertically at 75 feet to the bottom of the lowest floodlight. These are known as the South and the North tower.

Four lights of the South tower are pointed to illuminate the northwest quadrant or portion of the toll plaza; the other four lights illuminate the northeast portion. Four lights of the North tower illuminate the southeast portion of the area, while the other four lights illuminate the southwest portion. Thus the towers do not direct their light steeply down on the area on which they stand, and glare or blaze into the eyes of the motorists, but direct their light onto the farther quadrants nearest the other tower. The beams of light cross and the lighted areas overlap, producing maximum illumination in the middle. The standard highway lights around the sides of the plaza even the intensity to a condition of uniform illumination. These towers and lights were included in the contract covering the toll and office buildings.

In addition to the regular lighting system of the bridge, there are ten 200-watt aviation beacons, two on top of the horns of each tower of the suspension bridge over Hell Gate, two on each tower of the lift span over Harlem River, and one beacon on top of each floodlight tower.

The Triborough Bridge averages 35,000 vehicles per day with a future traffic of 100,000 already foreseen. Along the line of the bridge may be seen three new municipal structures: Stadium on Randall's Island (the smaller), sewage-disposal plant on Ward's Island (the larger), bathing pool in Astoria Park in Queens.

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Your Citizens Like the Protection and Comfort of Light

AN evening conference, an unexpected business trip—and you are suddenly aware that your wife and children need protection while they are home alone—while they walk down to the neighborhood theater. With you away, light can give that protection.

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If your administration recommends and installs good lighting, and points out its advantages, you will win the loyal support of your citizens. You are protecting motorist and pedestrian from accident and suffering; you are helping business by encouraging shopping; you are providing the comfort and security that women so appreciate. General Electric, Schenectady, New York.

You pay for good street lighting whether you have it or not . . . with inadequate lighting you pay in accidents, crime, and death.

500-127

GENERAL ELECTRIC

Mention THE AMERICAN CITY—it helps.

(foreground). The dark viaduct structure at the right is the Hell Gate Bridge of the New York, New Haven & Hartford R. R. Co. The Queens approach is a plate-girder viaduct structure; the East River is crossed by a suspension bridge of 1,380 feet main span; the viaduct continues over Ward's Island to Randall's Island via Little Hell Gate, to the high-level junction from which go the branches to the Bronx and Manhattan. This junction is of reinforced-concrete construction, designed for toll collection, and contains nine acres of connecting roadways and eliminates all left turns and grade crossings. North of the junction the bridge crosses Bronx Kills and the yards of the N. Y., N. H. & H. as a series of through-truss spans. The Bronx approach to street level (upper right) is a reinforced-concrete structure. The Manhattan branch (upper left) crosses the Harlem River via a through-truss vertical-lift bridge of 310-foot main span; and the approach to street level separates into two main branches as a plate-girder viaduct structure. The costs of this large PWA project were as follows:

LAND	
For bridge only:	
City paid	$2,100,000
Authority paid	6,300,000
	$8,400,000
For approaches:	
City paid	$10,700,000
Authority paid	4,600,000
	$15,300,000

CONSTRUCTION	
Bridge only:	
City paid	$3,300,000
Authority paid	20,100,000
Highway approaches:	
Authority paid	13,200,000
	$36,600,000
GRAND TOTAL COST OF TRI-BOROUGH BRIDGE	$60,300,000

The bridge carried 57,000 vehicles on the first Sunday and 26,000 vehicles per week-day during the first week. It relieves traffic on overloaded Queensborough Bridge between Long Island City and 59th Street, Manhattan.

O. H. Ammann is Chief Engineer of the Triborough Bridge Authority, Allston Dana is Engineer of Design, and Colonel H. W. Hudson is Engineer of Construction.

McLaughlin Aerial Surveys

NEW YORK CITY'S TRIBOROUGH BRIDGE OPENED JULY 11, 1936

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SEPTEMBER, 1936
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The American City

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(See page 75, this issue)